

Odtwarzacz DVD / Magnetowid VHS

**VC-8716
VC-8816**

SECTION 1 SUMMARY

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PRODUCT SAFETY SERVICING GUIDELINES FOR VIDEO PRODUCTS

CAUTION : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY. NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY.

SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER.

WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM A.C. LINE SHOCK.

SAFETY CHECKS

AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRECTED, A CHECK SHOULD BE MADE OF THE FOLLOWING.

SUBJECT : FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.

2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.

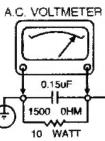
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS, SOLDER SPLASHES OR SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.

4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS, FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING A.C. CORD), AND REPLACE IF NECESSARY. FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.

5. NO LEAD OR COMPONENT SHOULD TOUCH A RECEIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUING METAL SURFACES MUST BE AVOIDED.

6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTORS, CAPACITORS, ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES. DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.

7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN A.C. LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET, THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS, HANDLE, ETC. IT SHOULD BE SURE THAT THE UNIT IS SAFE TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE LINE ISOLATION TRANSFORMER DURING THIS TEST. USE AN A.C. VOLTMETER, HAVING 5000 CHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER: CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY .15 MFD 150 V A.C. TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PART. TAKE THE MEASUREMENT AC VOLTS ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND 15 MFD CAPACITOR. REVERSE THE A.C. PLUG AND REPEAT A.C. VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART. VOLTAGE MEASURED MUST NOT EXCEED .75 VOLTS R.M.S. THIS CORRESPONDS TO 0.5 MILLIAMP A.C. ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.



SUBJECT: GRAPHIC SYMBOLS

THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNLISTED HAZARDOUS VOLTAGES THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.

THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

SERVICING PRECAUTIONS

CAUTION : Before servicing the VCR+DVD covered by this service data and its supplements and addends, read and follow the SAFETY PRECAUTIONS. NOTE : If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publication, always follow the safety precautions.

Remembers Safety First.

General Servicing Precautions

1 Always unplug the VCR+DVD AC power cord from the AC power source before:

(1) Removing or reinstalling any component, circuit board, module, or any other assembly.

(2) Disconnection or reconnecting any internal electrical plug or other electrical connection.

(3) Connecting a test substitute in parallel with an electrolytic capacitor.

Caution : A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2 Do not spray chemicals on or near this VCR+DVD or any of its assemblies.

3 Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator. Unless specified otherwise in this service data, lubrication of contacts is not required.

4 Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.

5 Do not apply AC power to this VCR+DVD and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.

6 Always connect test instrument ground lead to the appropriate ground before connection the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.

Note 1 : Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1 Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2 After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3 Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4 Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.

5 Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.

6 Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).

7 Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8 Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

SPECIFICATIONS

DVD PART

Power supply	AC 200~240V, 50 Hz
Power consumption	19W
Mass	5.4kg
External dimensions	430 x 97.5 x 360 (W x H x D)
Signal system	PAL 625/50, NTSC 525/60
Laser	Semiconductor laser, wavelength 650nm
Frequency range (digital audio)	4 Hz to 20 kHz
Signal-to-noise ratio (digital audio)	More than 100 dB (EIAJ)
Audio dynamic range (digital audio)	More than 100 dB (EIAJ)
Harmonic distortion(digital audio)	0.008%
Wow and flutter	Below measurable level (less than +0.001%(W.PEAK)) (EIAJ)
Operations	Temperature : 5°C(41°F) to 35°C(95°F), Operation status : Horizontal

OUTPUTS

Video outputs	1.0V(p-p), 75Ω, negative sync., RCA jack x 1/SCART(TO TV)
S video outputs	(Y)1.0V(p-p), 75Ω, negative sync., Mini DIN 4-pin x 1 (C)0.3V(p-p), 75Ω
Component video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., RCA jack x 1 (Pb)/(Pr) 0.7 V (p-p), 75 Ω
Audio output(digital audio)	0.5V(p-p), 75Ω, RCA jack X 1/SCART(TO TV)
Audio output(optical audio)	Optical connector x 1
Audio output(analog audio)	2.0Vrms (1kHz, 0dB), 330Ω, RCA jack (L, R) x 1/ SCART(TO TV)

VHS PART

Video Head System	Double azimuth 4 heads, helical scanning
Tape format	Tape width 12.7 mm (0.5 inch)
Timer	24 hours display type

*Designs and specifications are subject to change without notice.

*Weight and dimensions shown are approximate.

SECTION 2

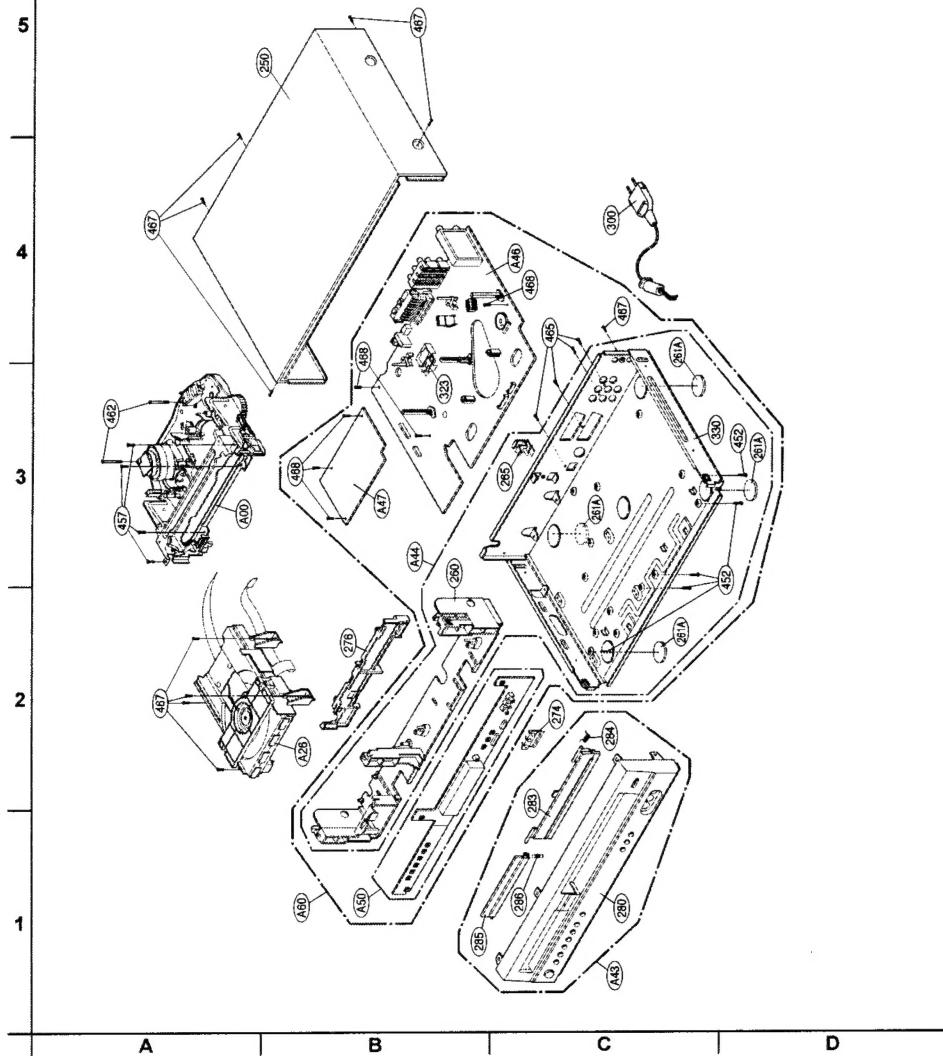
CABINET & MAIN CHASSIS

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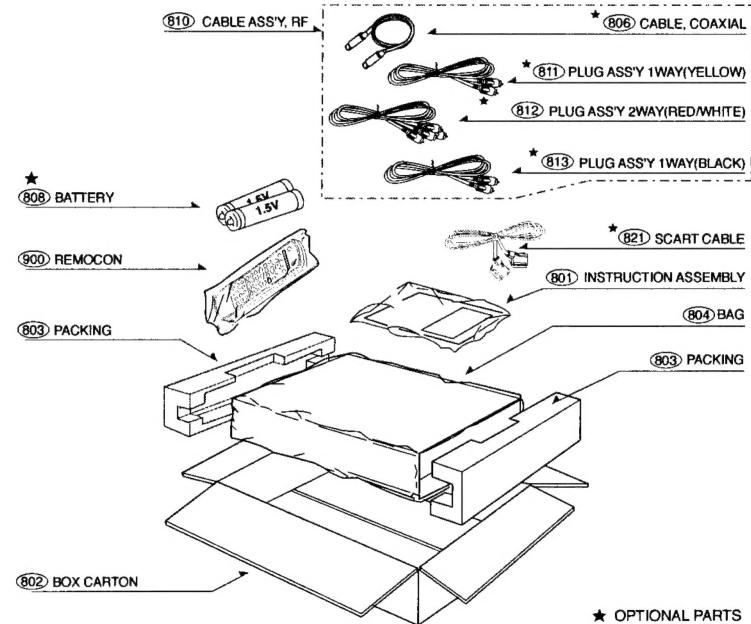
EXPLODED VIEWS

1. Cabinet and Main Frame Section



2-2

2. Packing Accessory Section



★ OPTIONAL PARTS

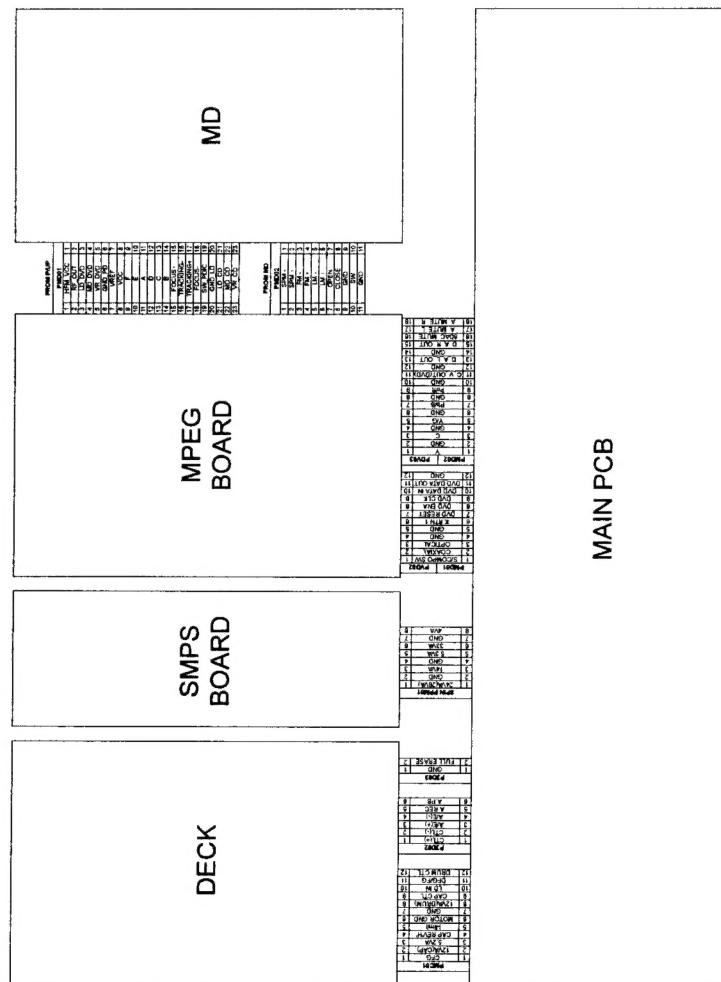
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OVERALL WIRING DIAGRAM



VCR PART ELECTRICAL ADJUSTMENT PROCEDURES

1. Servo Adjustment

- 1) PG Adjustment
 - Test Equipment

- a) OSCILLOSCOPE
- b) NTSC MODEL : NTSC SP TEST TAPE

• Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(TP)	R/C TRK JIG KEY	$6.5 \pm 0.5H$

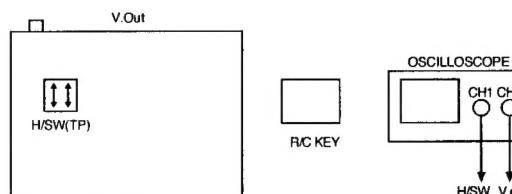
• Adjustment Procedure

- a) Insert the SP Test Tape and play.
Note - Adjust the distance of X, pressing the Tracking(+) or Tracking(-) when the "ATR" is blink after the SP Test Tape is inserted.
- b) Connect the CH1 of the oscilloscope to the H/SW(TP) and CH2 to the Video Out for the VCR.
- c) Trigger the mixed Combo Video Signal of CH2 to the CH1 H/SW(TP), and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(TP) signal to the starting point of the vertical synchronized signal, to $6.5H \pm 0.5H$ ($412\mu s$, $1H=63\mu s$).

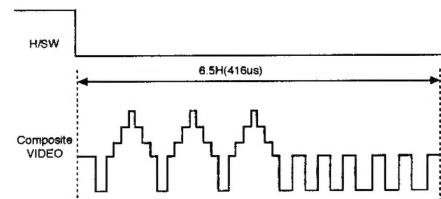
• PG Adjustment Method

- a-1) Playback the SP standard tape
- b-2) Press the "I" key on the Remote controller and the "PLAY" key on the Front Panel the same time, then it goes in to Tracking initial mode.
- c-3) Repeat the above step(No.b-2), then it finishes the PG adjusting automatically.
- d-4) Stop the playback, then it goes out to PG adjusting mode after many the PG data.

• CONNECTION

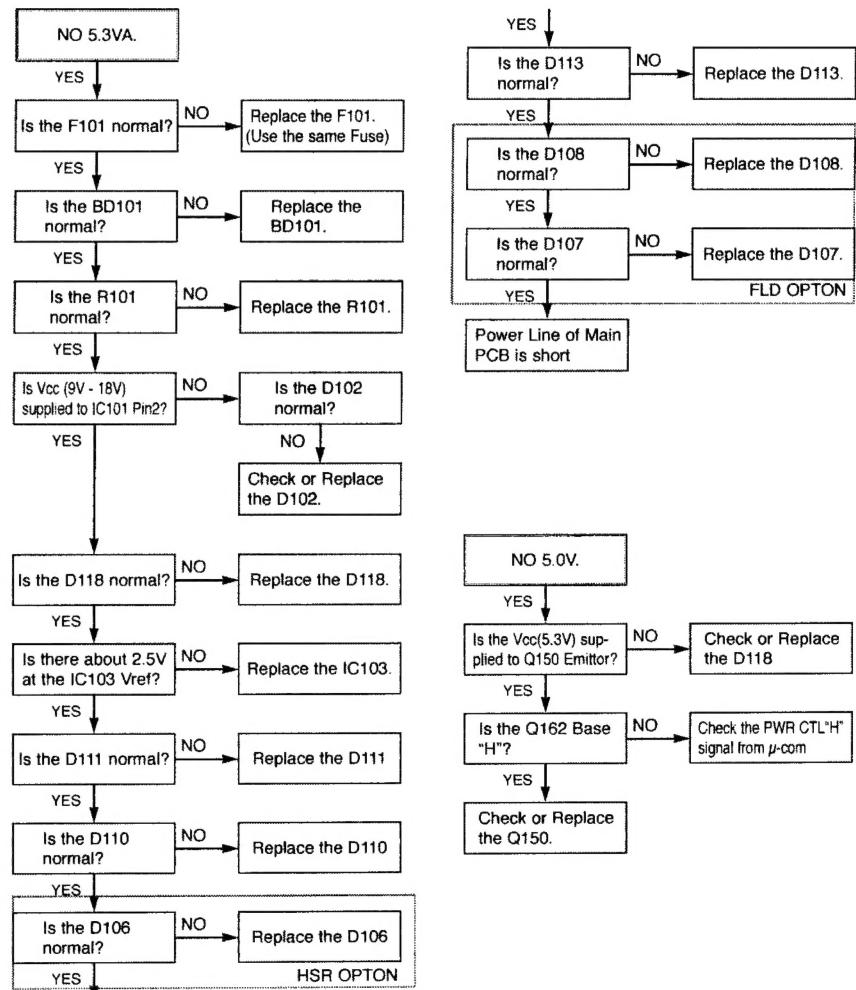


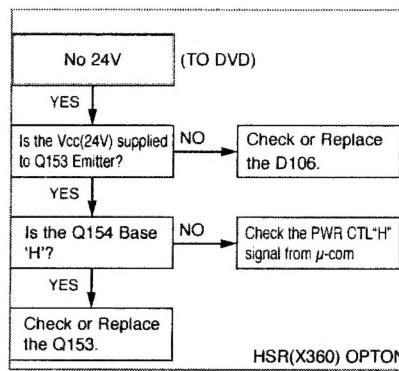
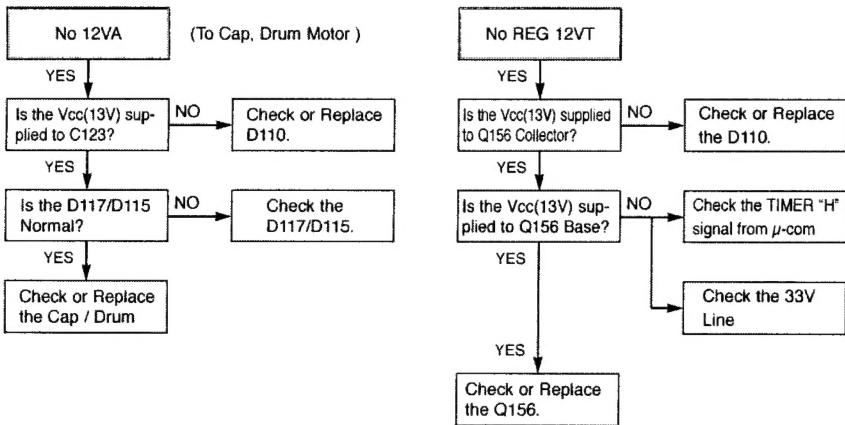
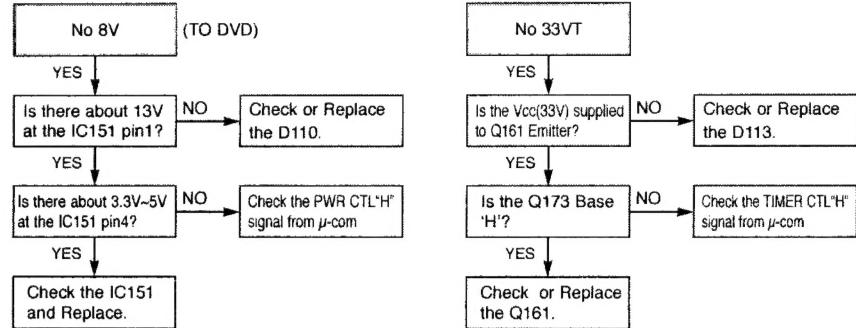
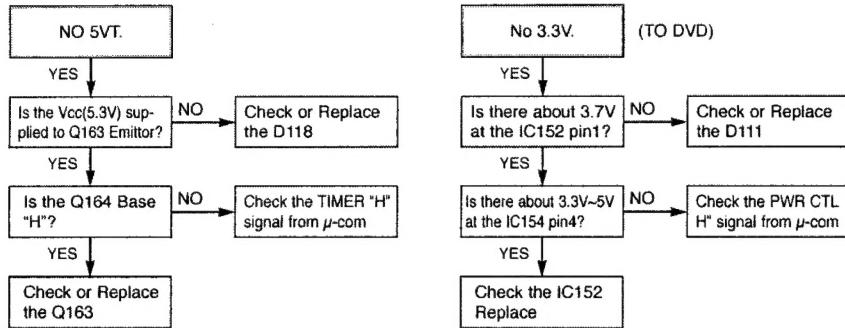
• WAVEFORM



ELECTRICAL TROUBLESHOOTING GUIDE

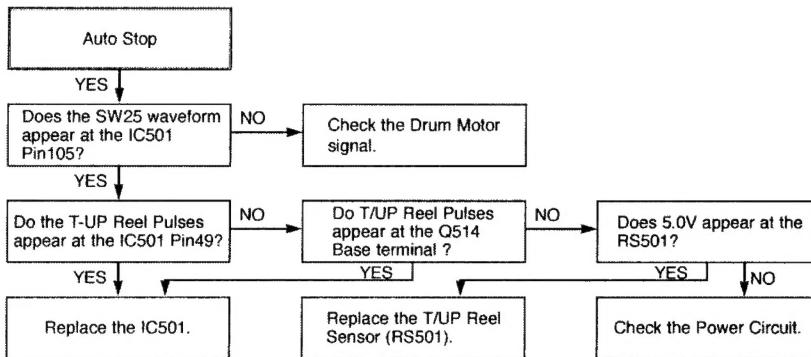
1. Power(SMPS) CIRCUIT



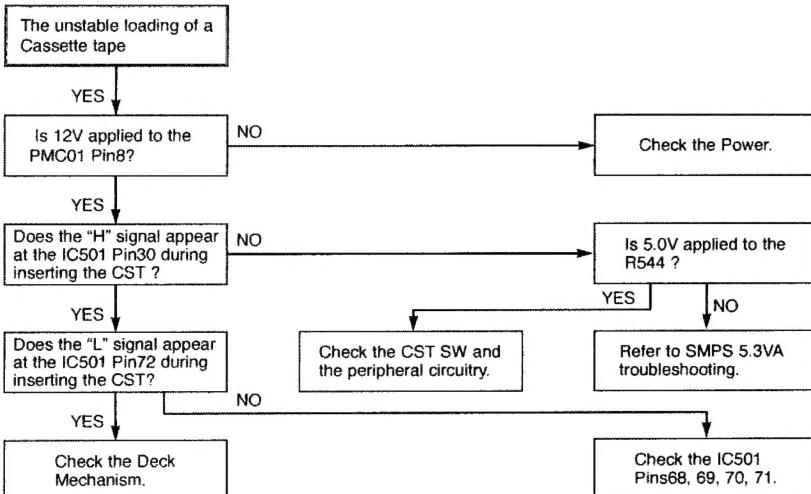


2. SYSTEM/KEY CIRCUIT

(1) AUTO STOP



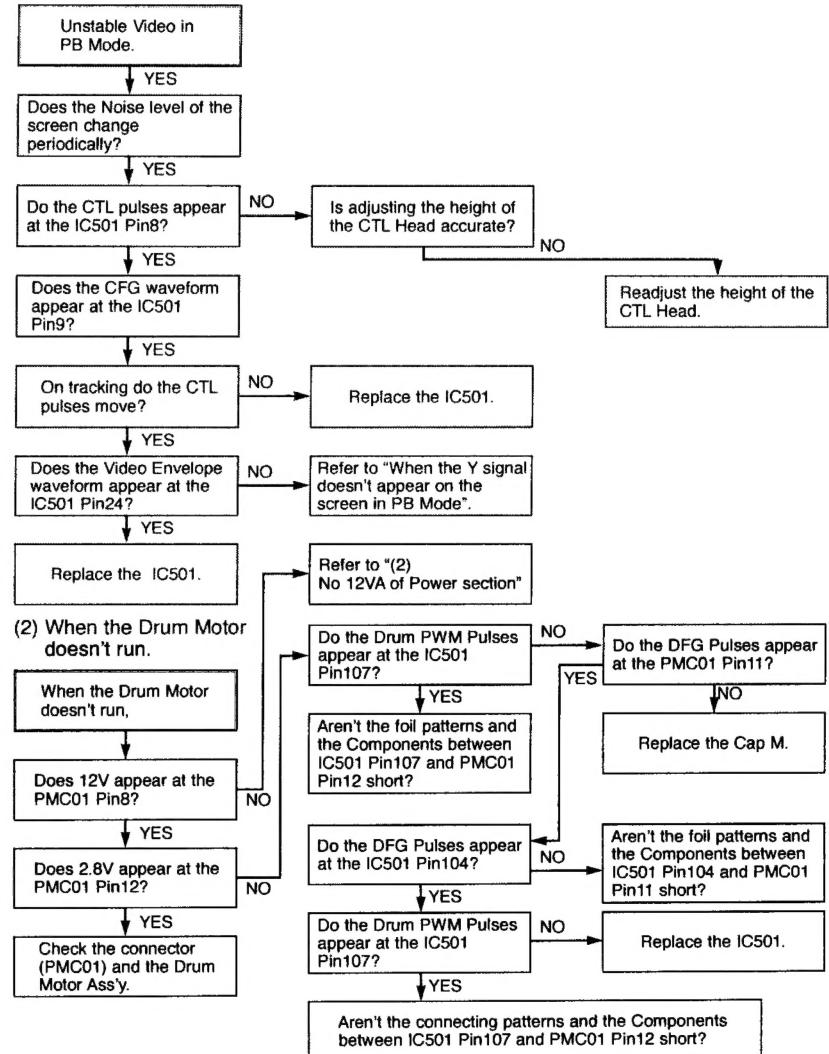
(2) The unstable loading of a Cassette tape



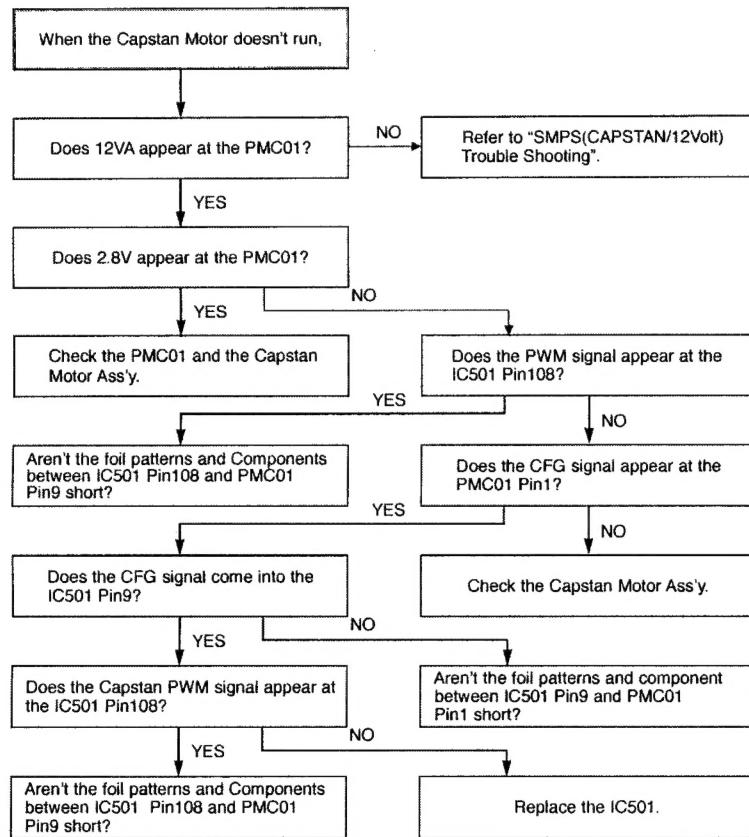
Caution : Auto stop can occur because Grease or Oil is dried up

3. SERVO CIRCUIT

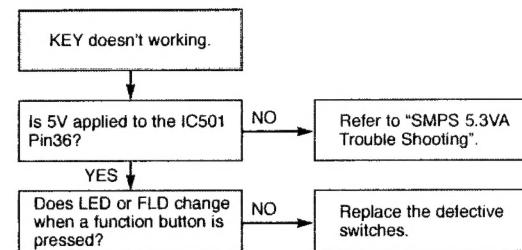
(1) Unstable Video in PB MODE



(3) When the Capstan Motor doesn't run,

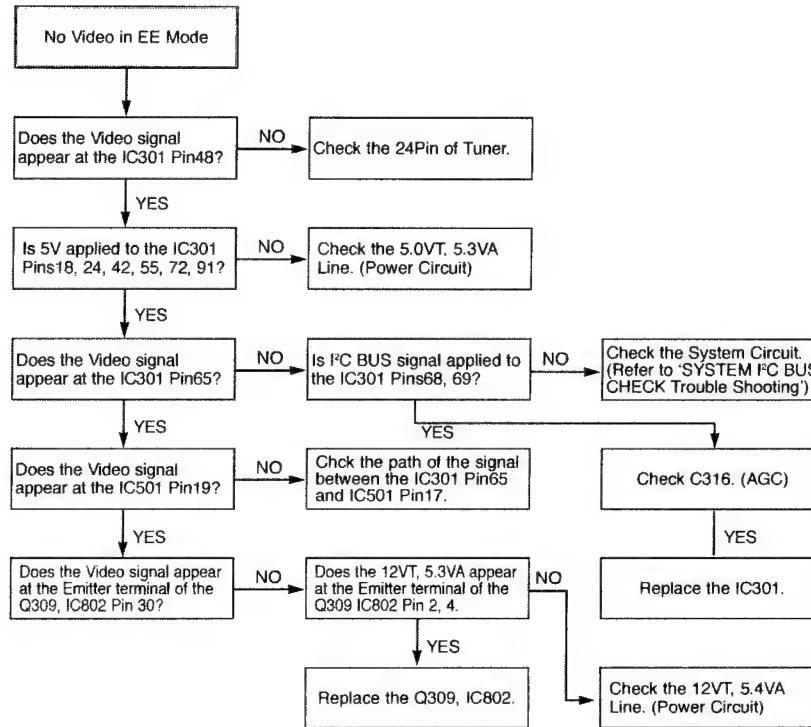


(4) KEY doesn't working

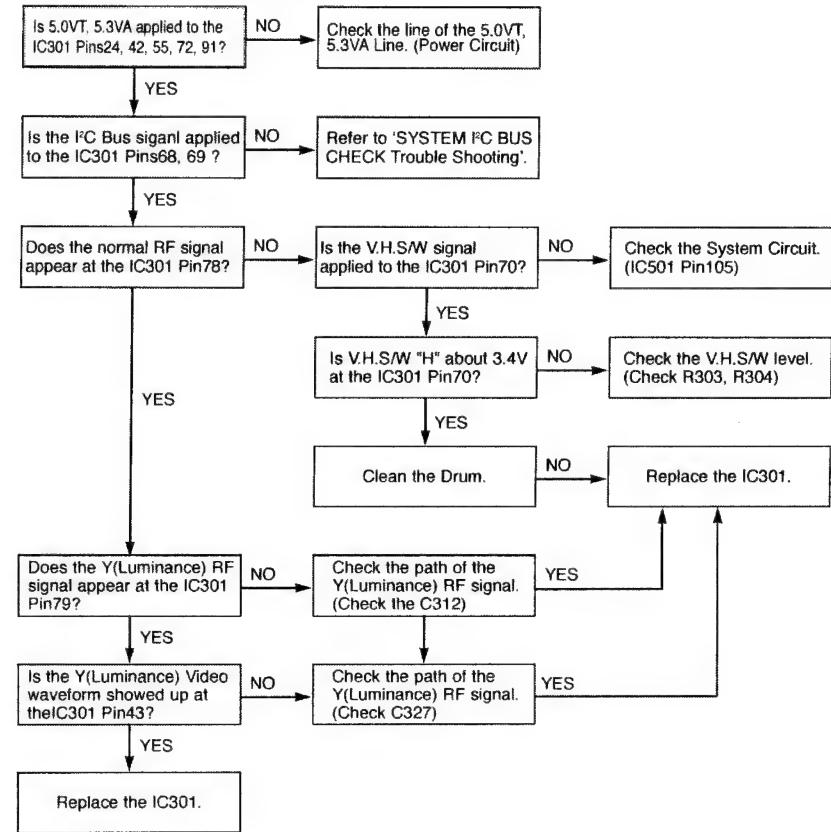


4. Y/C CIRCUIT

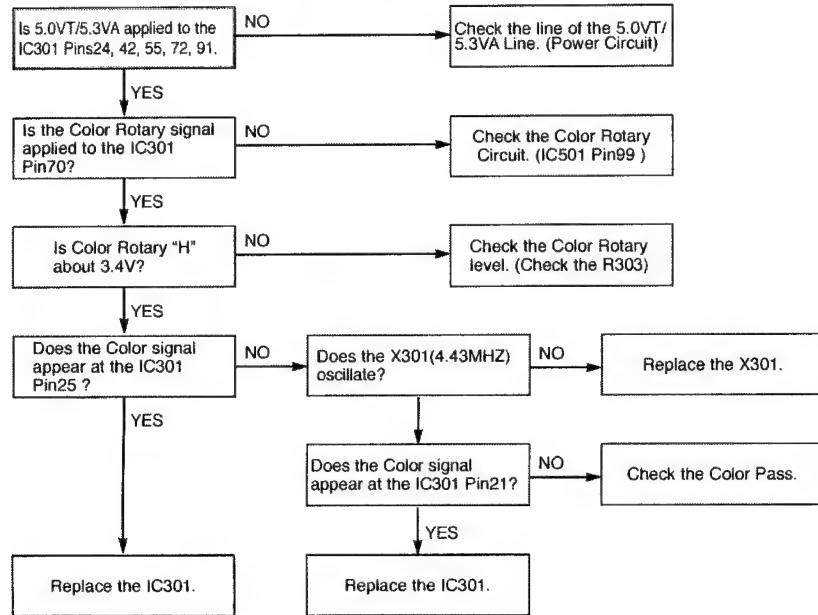
(1) No Video in EE Mode,



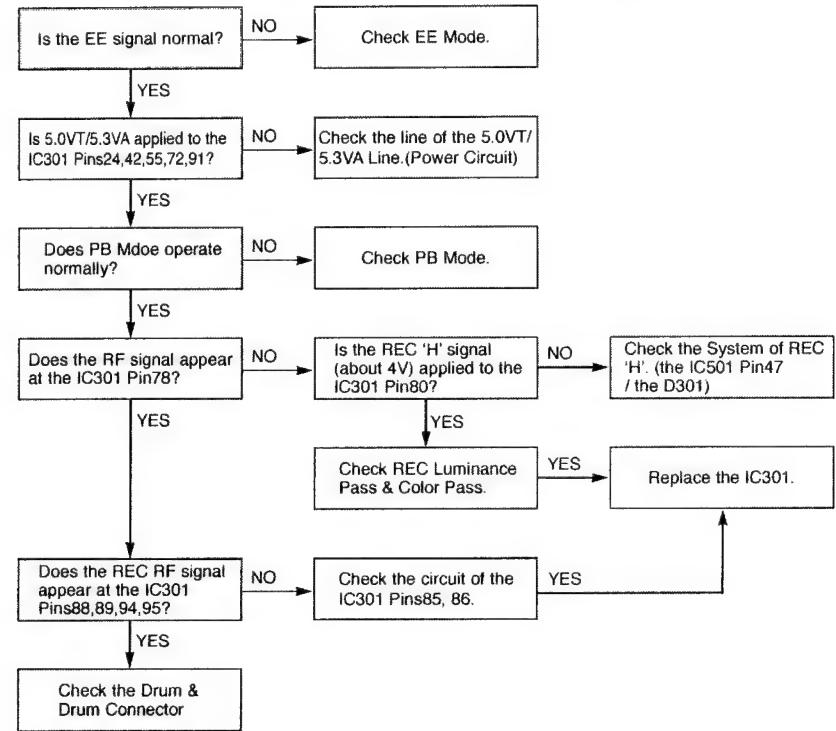
(2) When the Y(Luminance) signal doesn't appear on the screen in PB Mode,



(3) When the C(Color) signal doesn't appear on the screen in PB Mode,

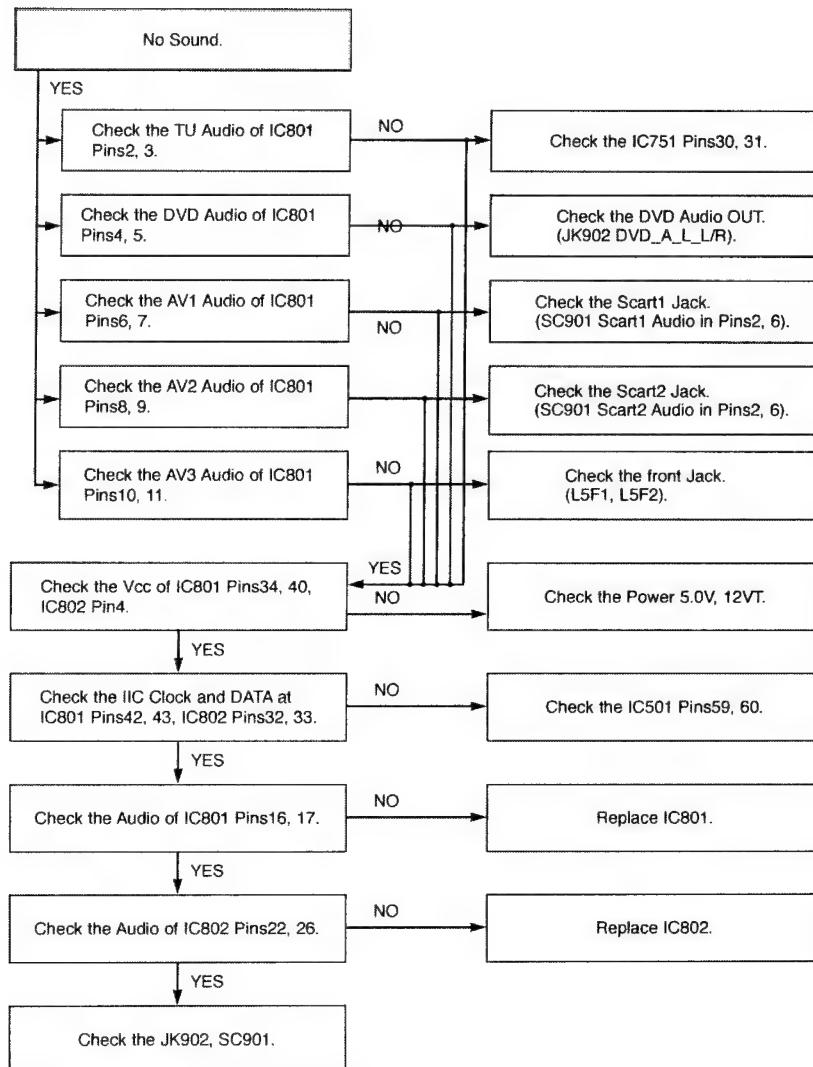


(4) When the Video signal doesn't appear on the screen in REC Mode,

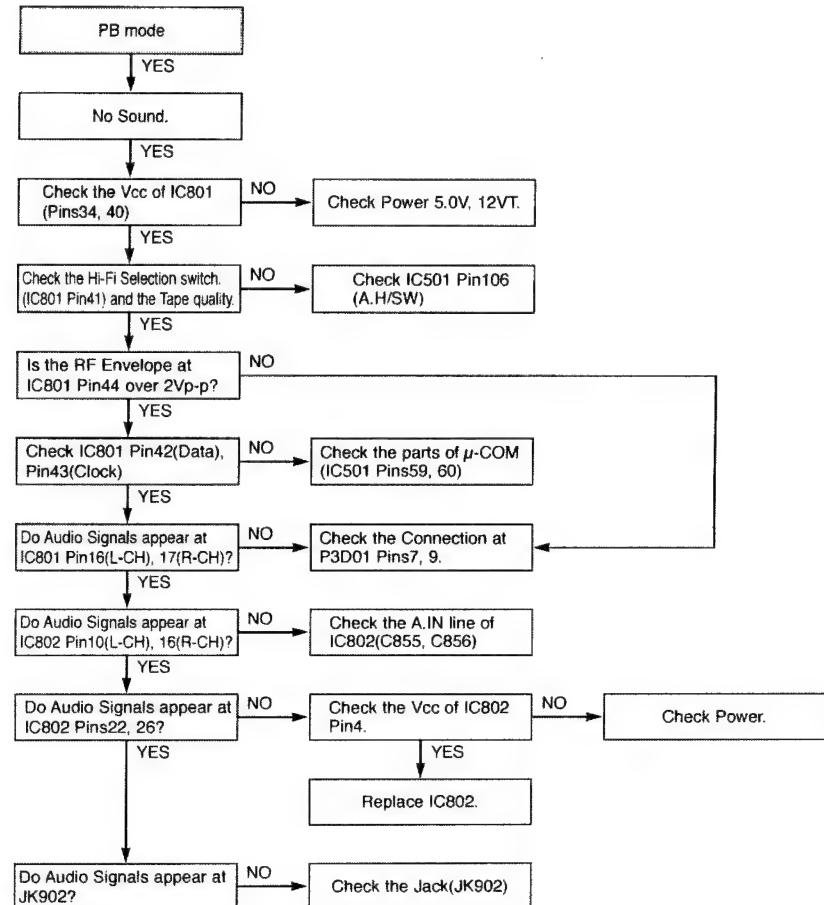


5. HI-FI CIRCUIT

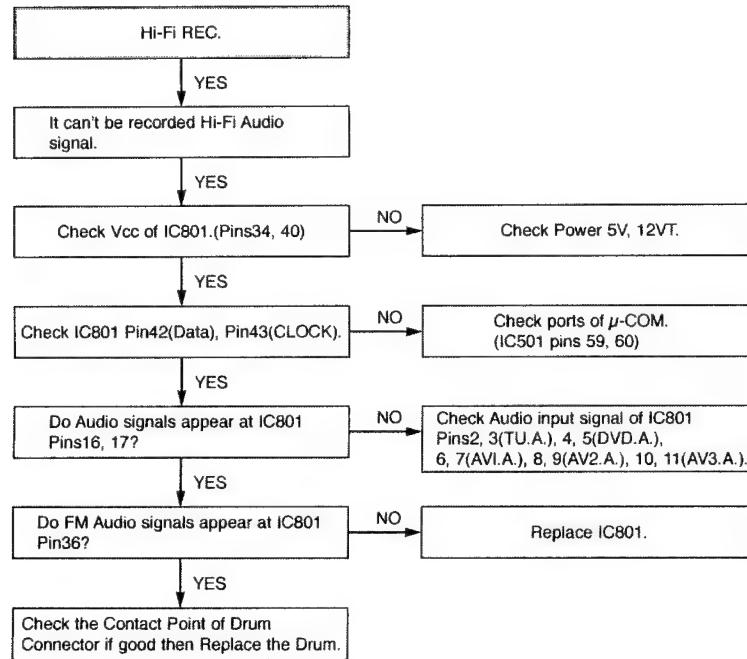
(A) No Sound(EE Mode)



(B) Hi-Fi Playback

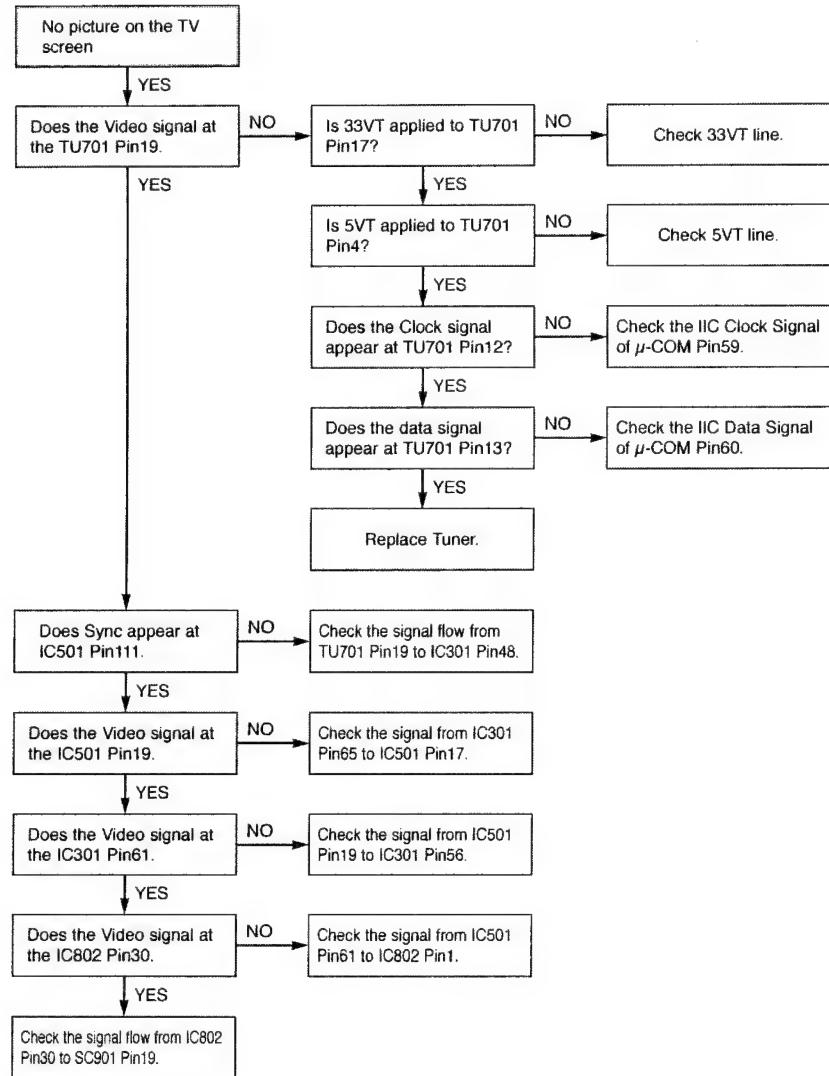


(C)

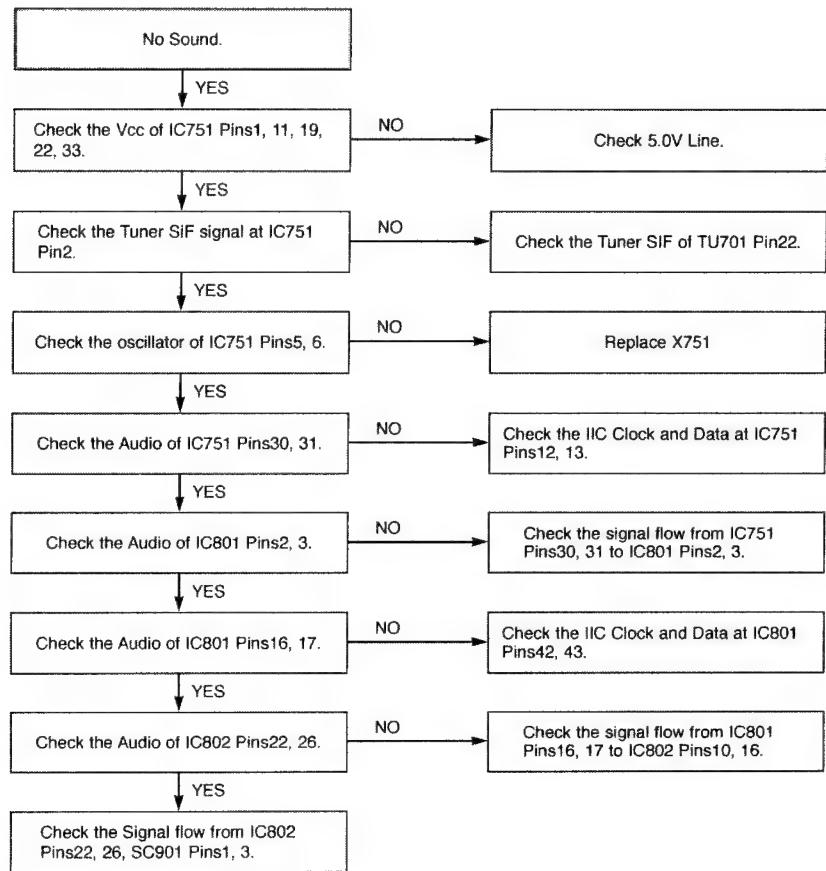


6. Tuner/IF CIRCUIT

(A) No Picture on the TV screen

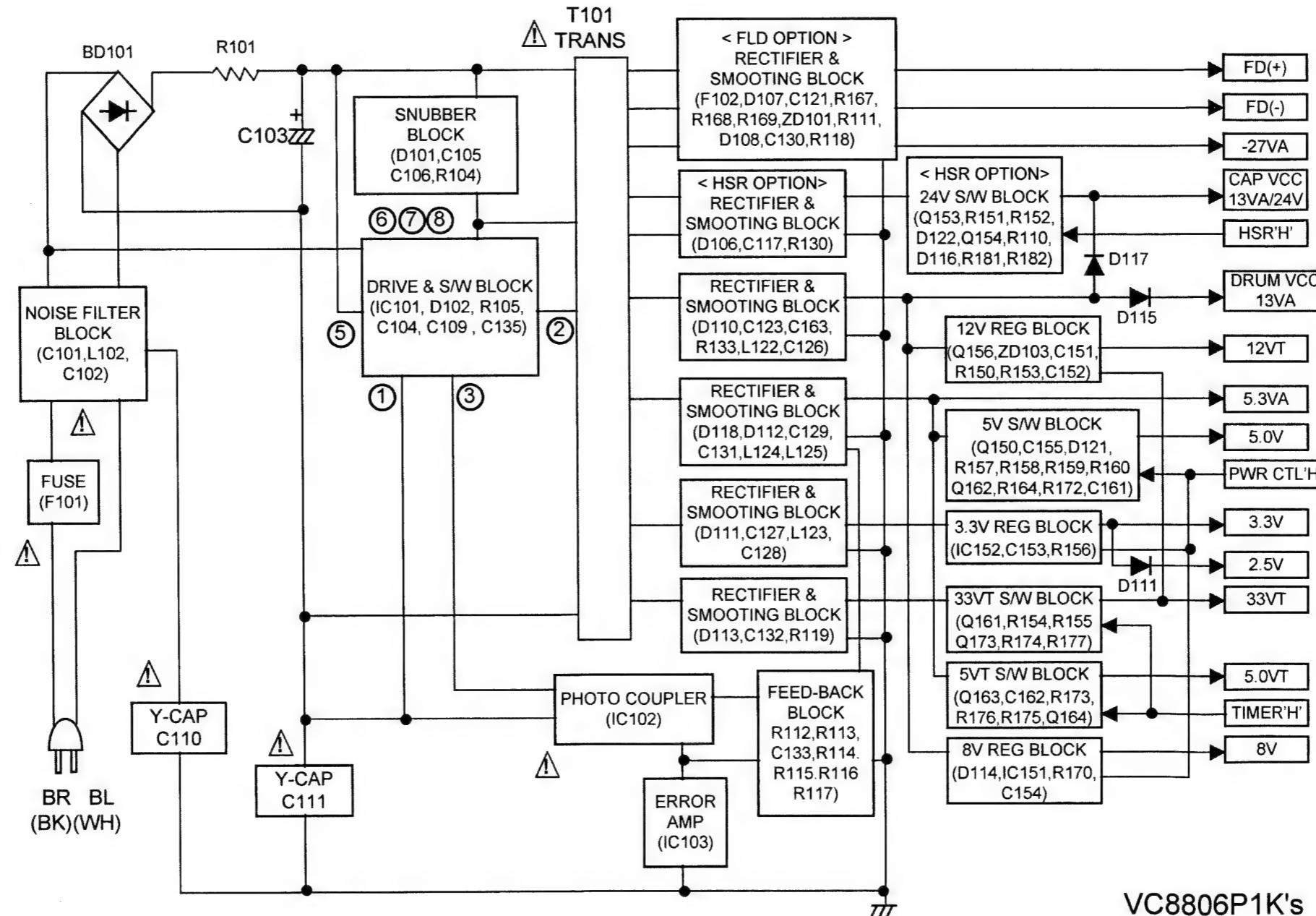


(B) No Sound

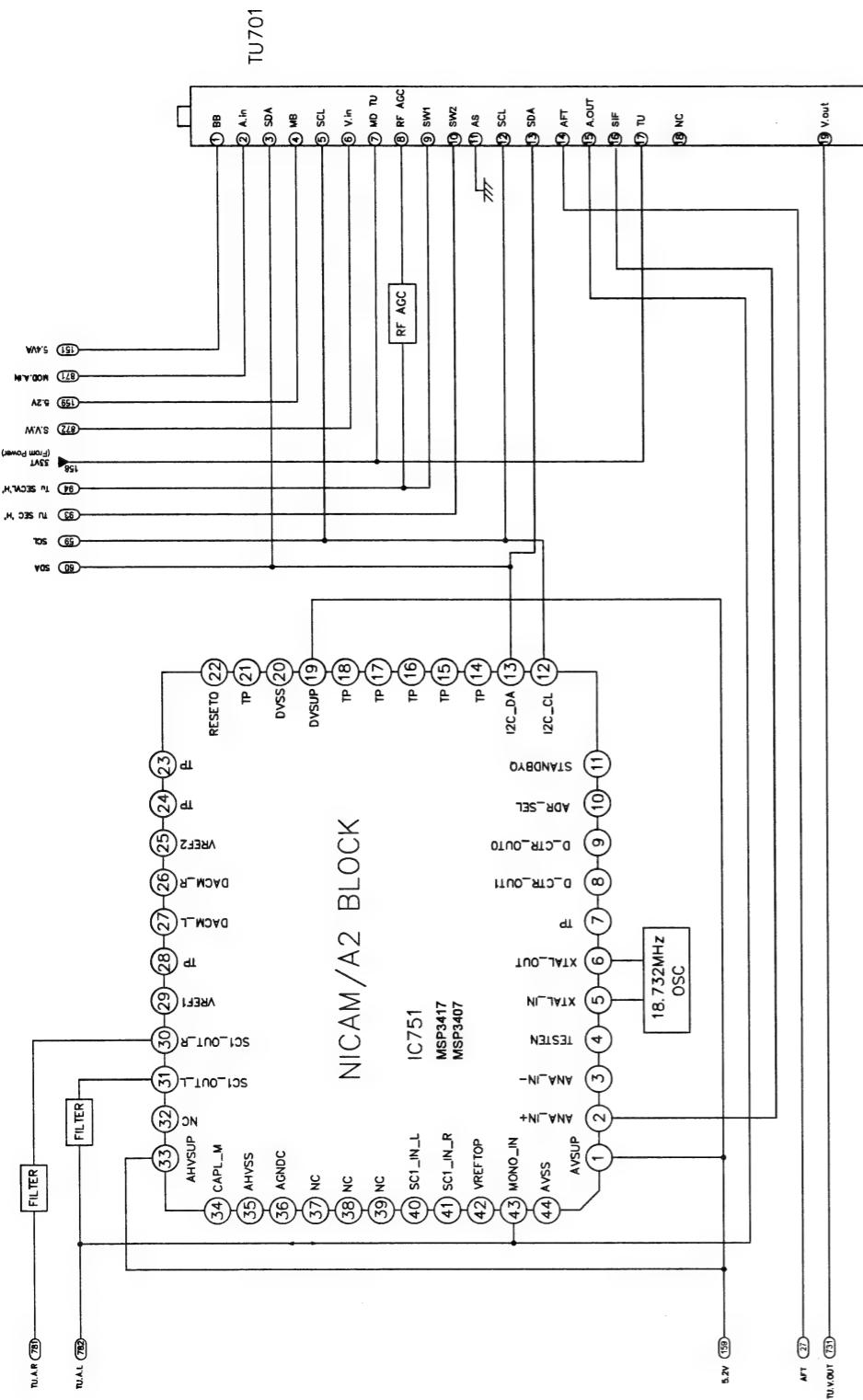


BLOCK DIAGRAMS

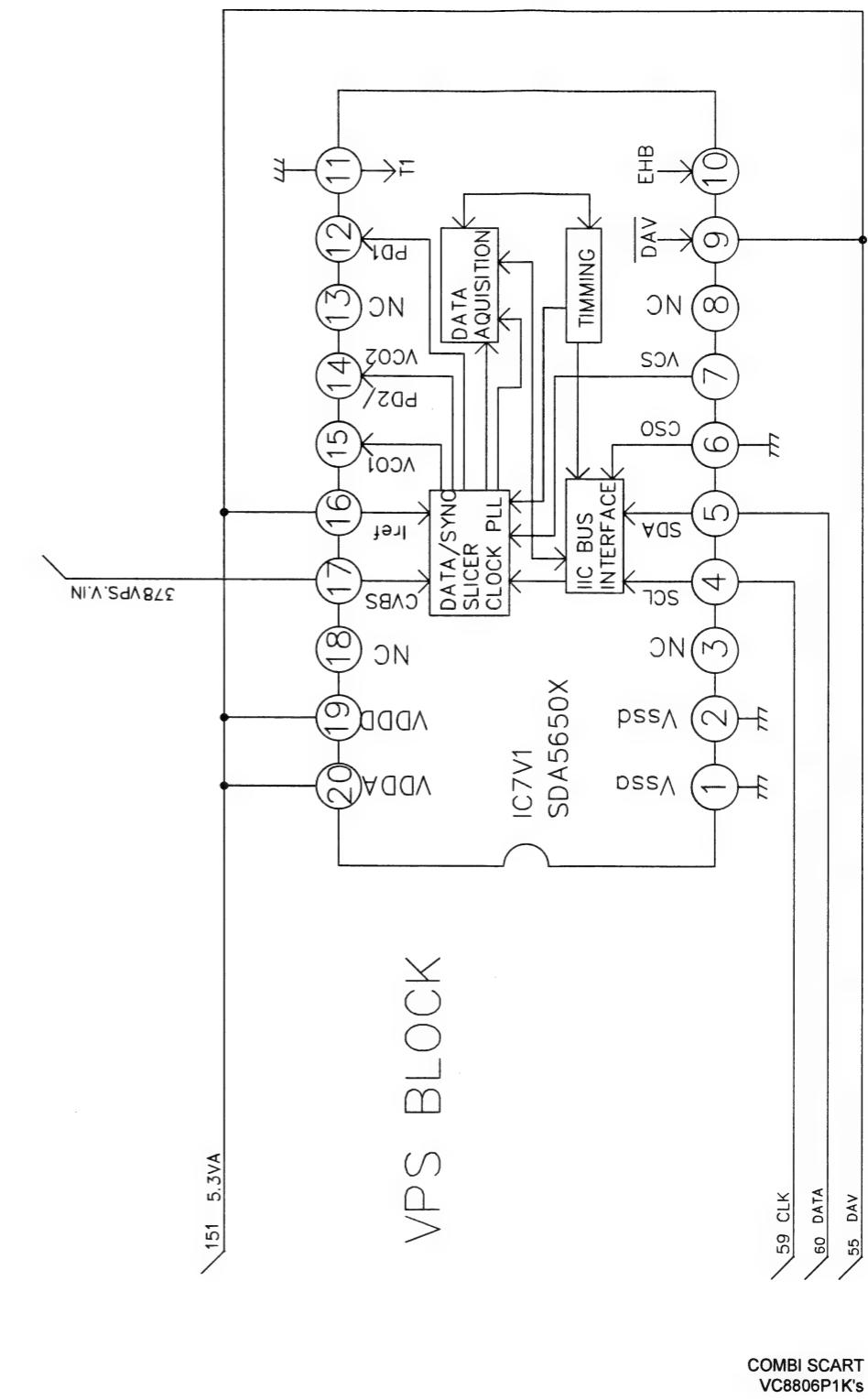
1. POWER(SMPS) BLOCK DIAGRAM



2. Tu/IF, NICAM & A2 BLOCK DIAGRAM

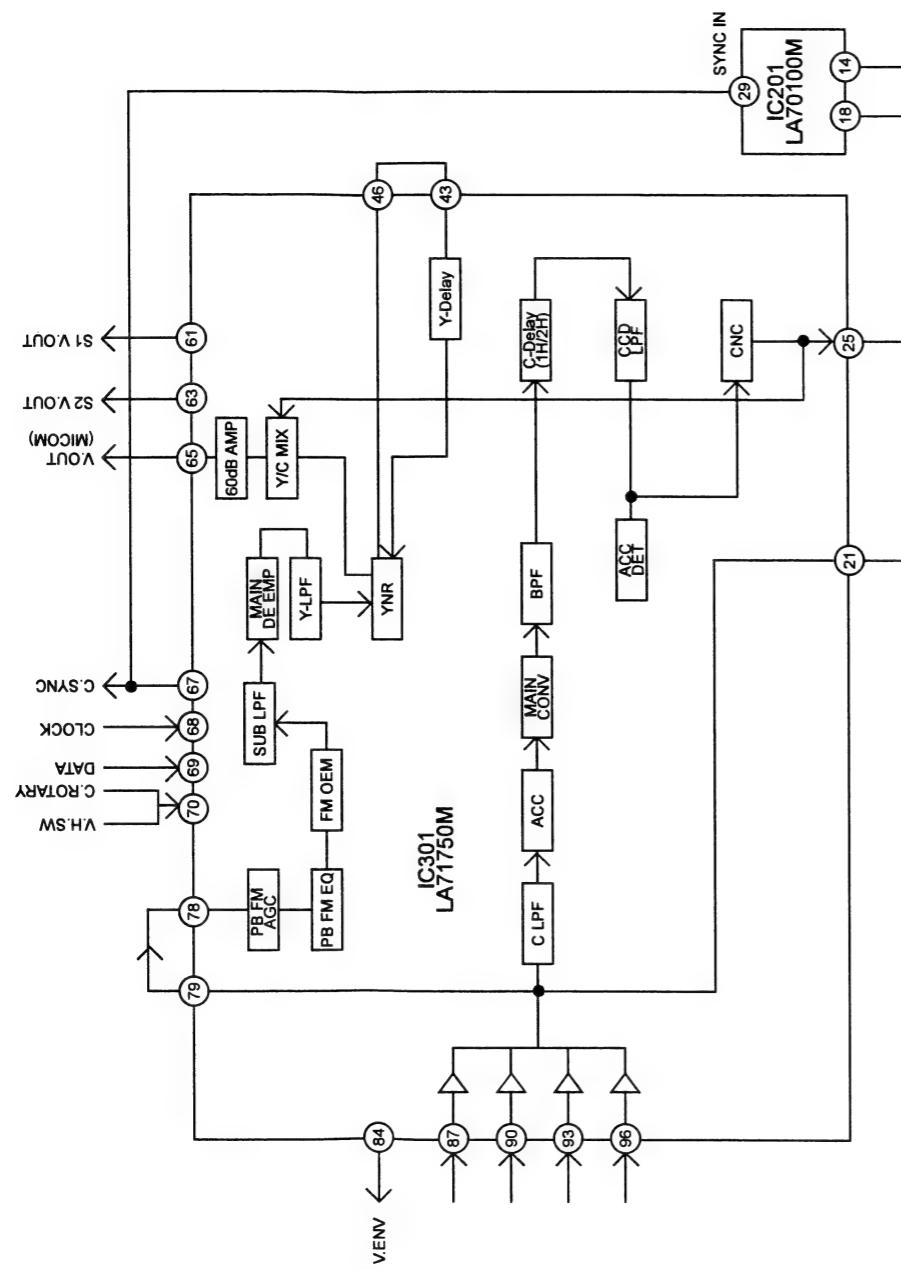


3. VPS BLOCK DIAGRAM



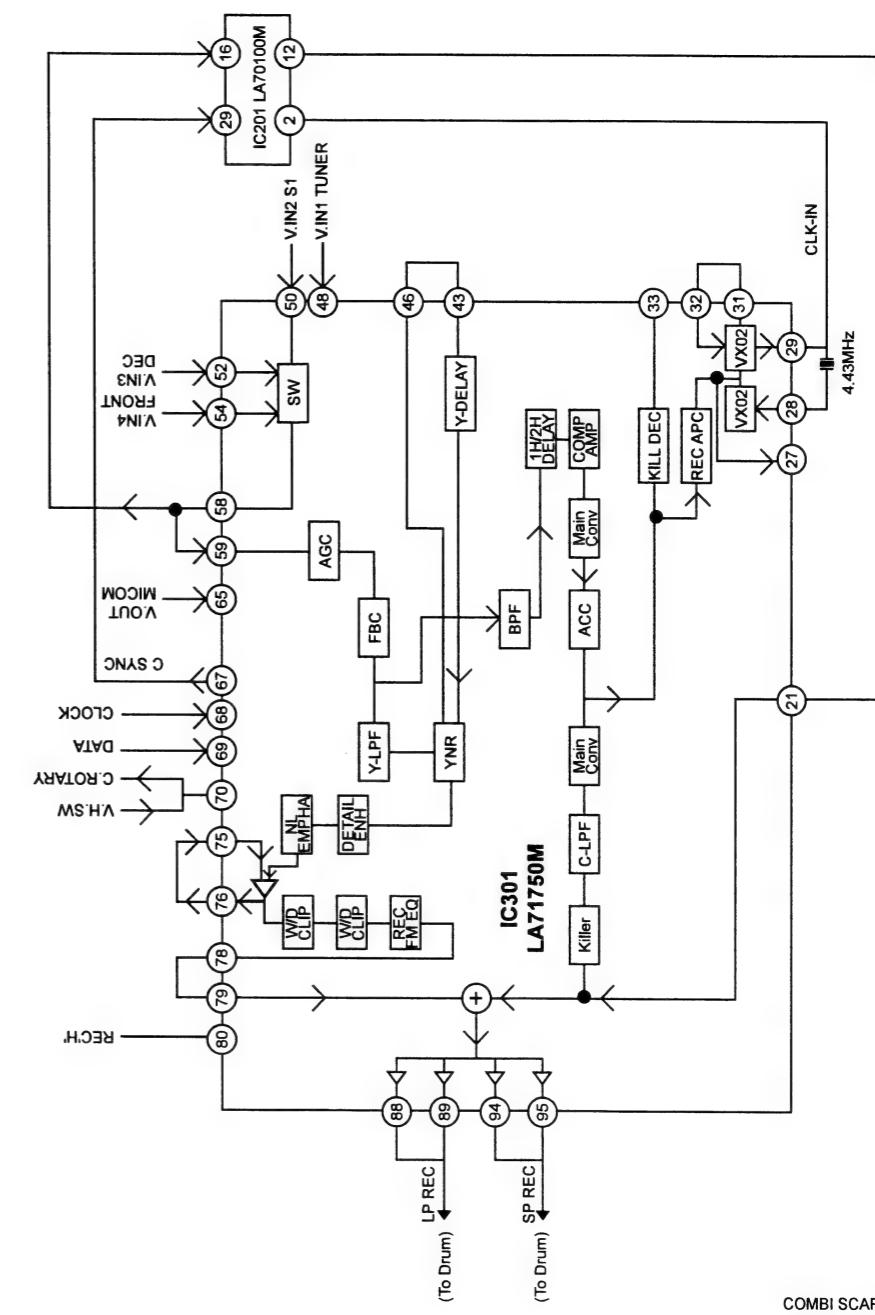
4. Y/C BLOCK DIAGRAM

(PB MODE)



3-24

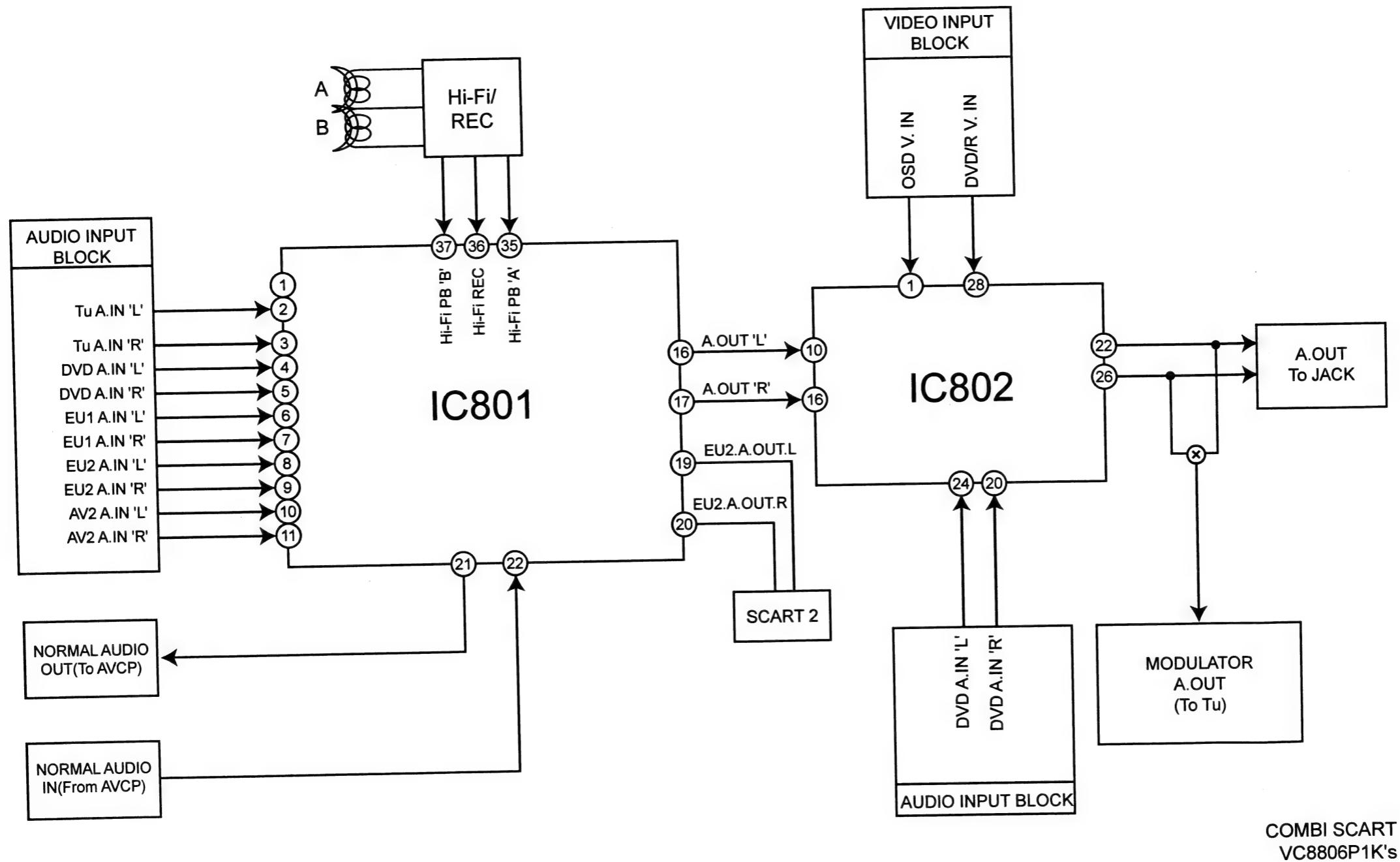
(REC MODE)



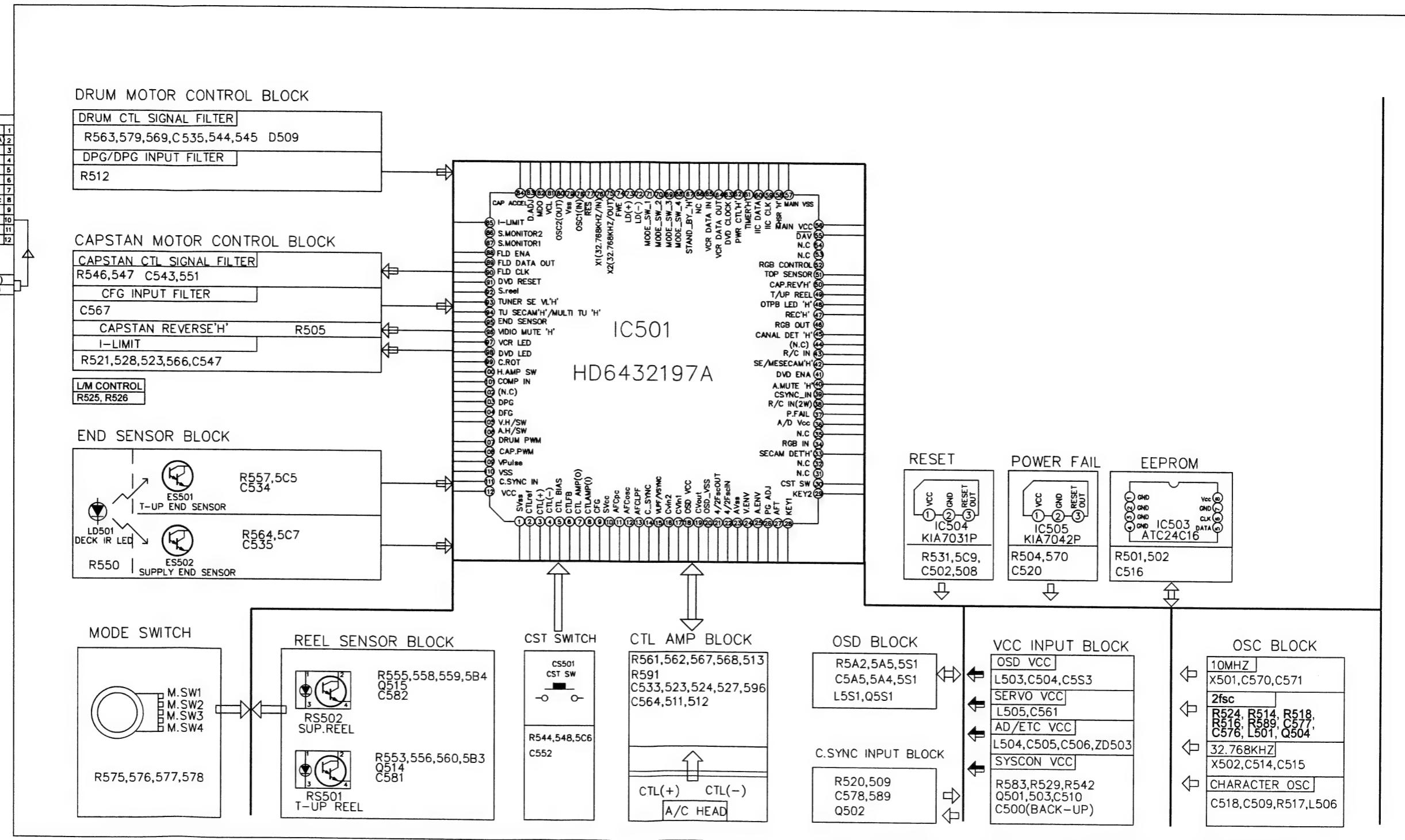
3-25

COMBI SCART
VC8806P1K's

5. Hi-Fi BLOCK DIAGRAM



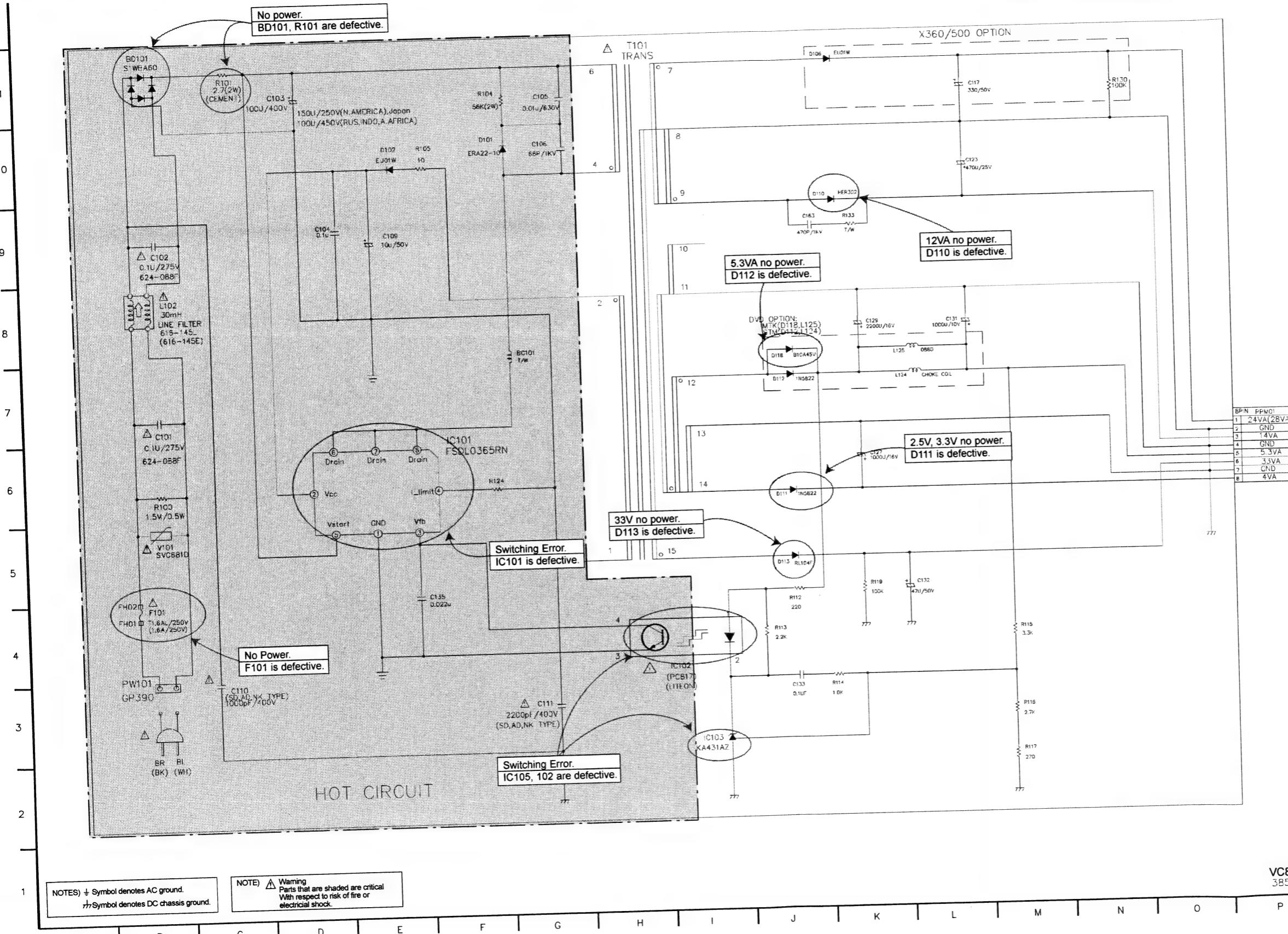
6. SYSTEM BLOCK DIAGRAM



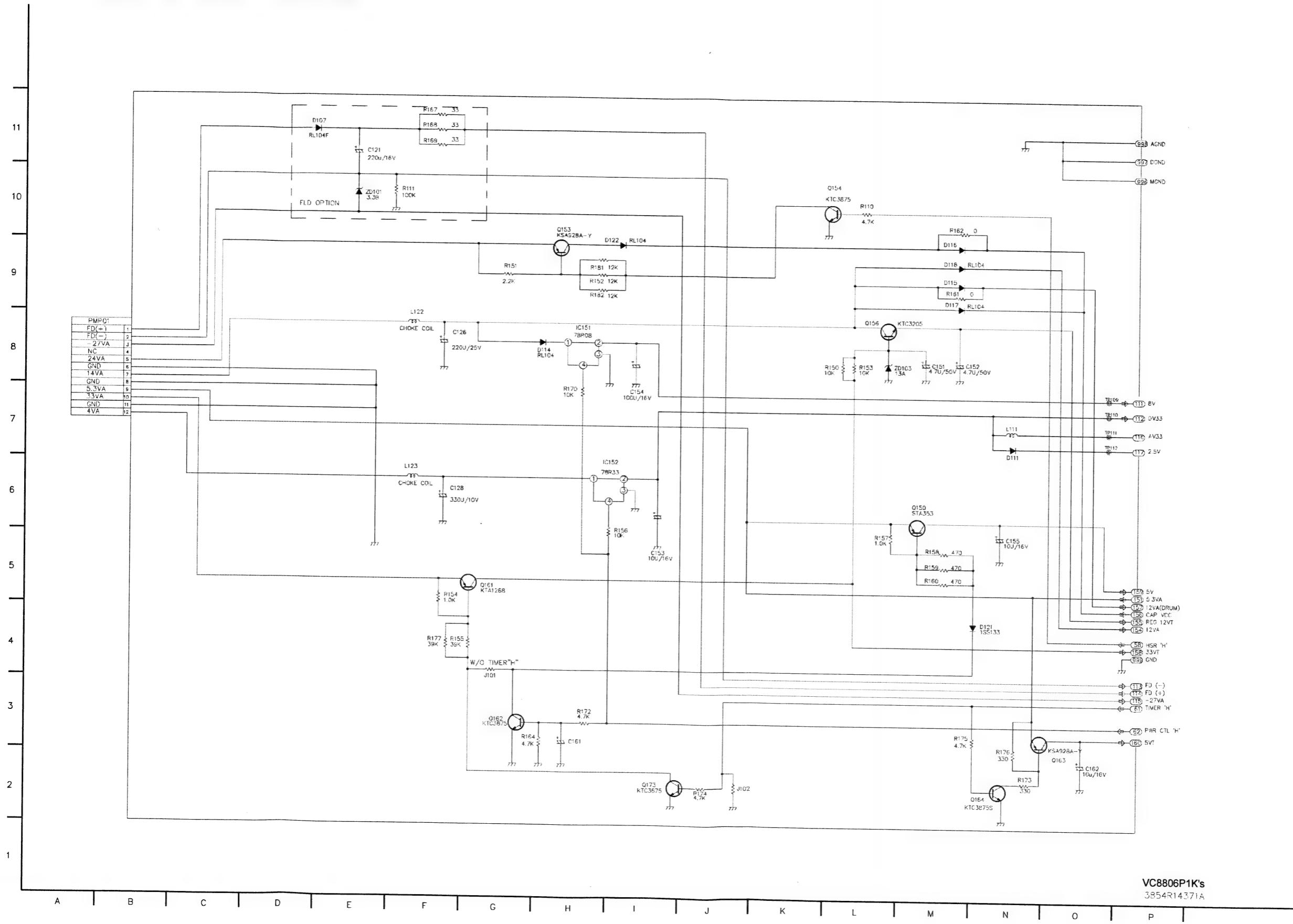
COMBI SCART
VC8806P1K's

CIRCUIT DIAGRAMS

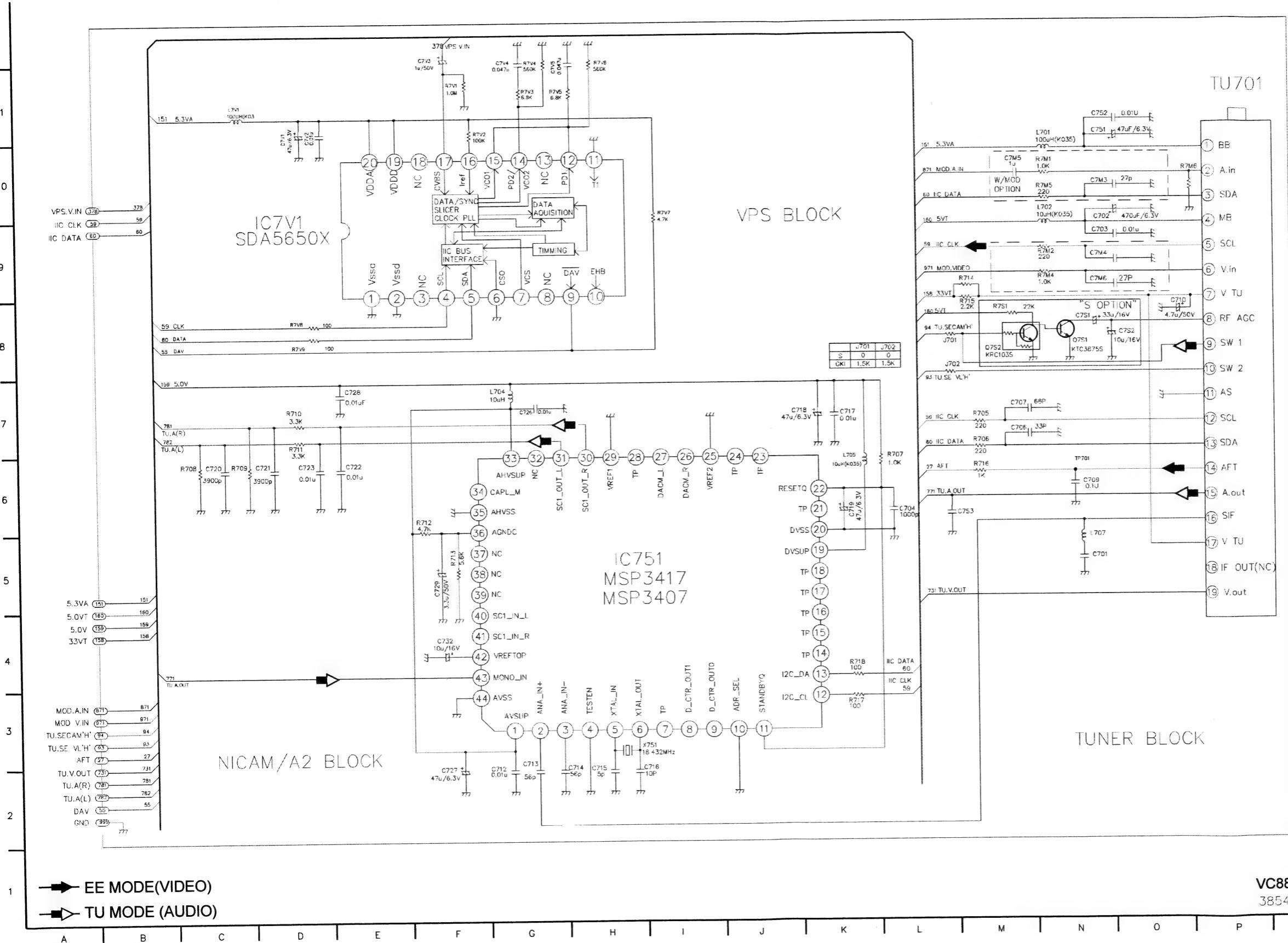
1. POWER(SMPS) CIRCUIT DIAGRAM 1



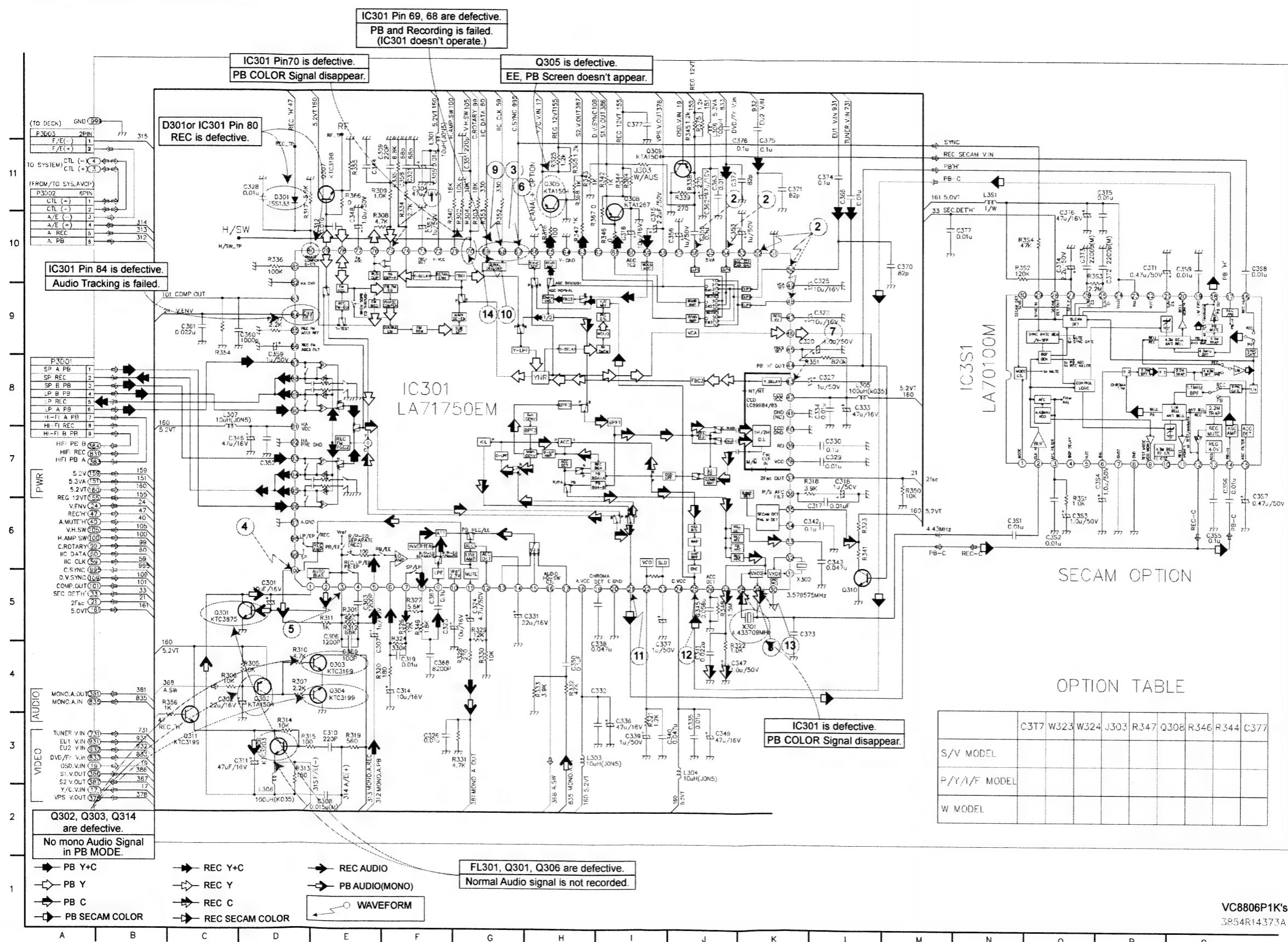
2. POWER(SMPS) CIRCUIT DIAGRAM 2



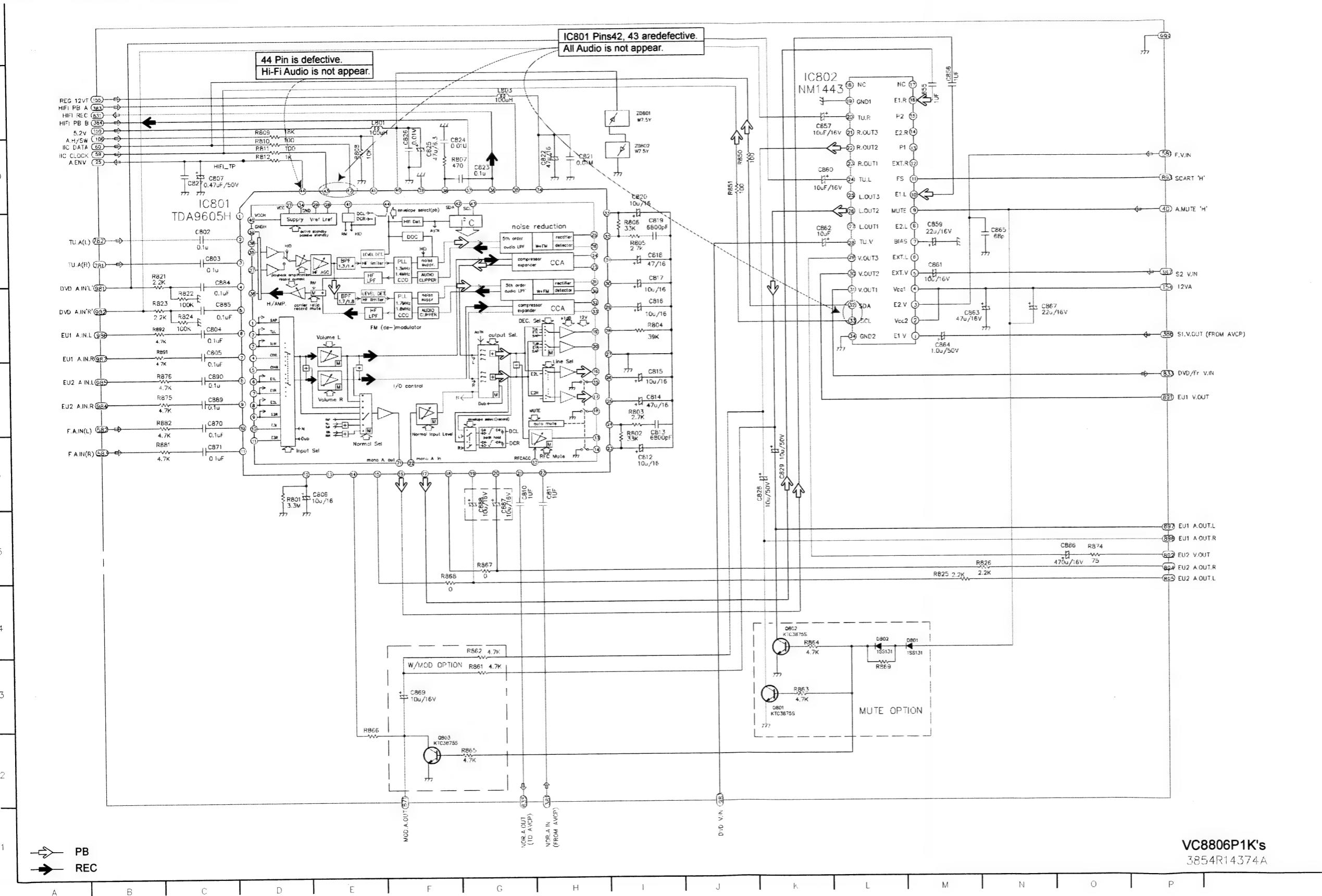
3. TU/IF, NICAM & A2 CIRCUIT DIAGRAM



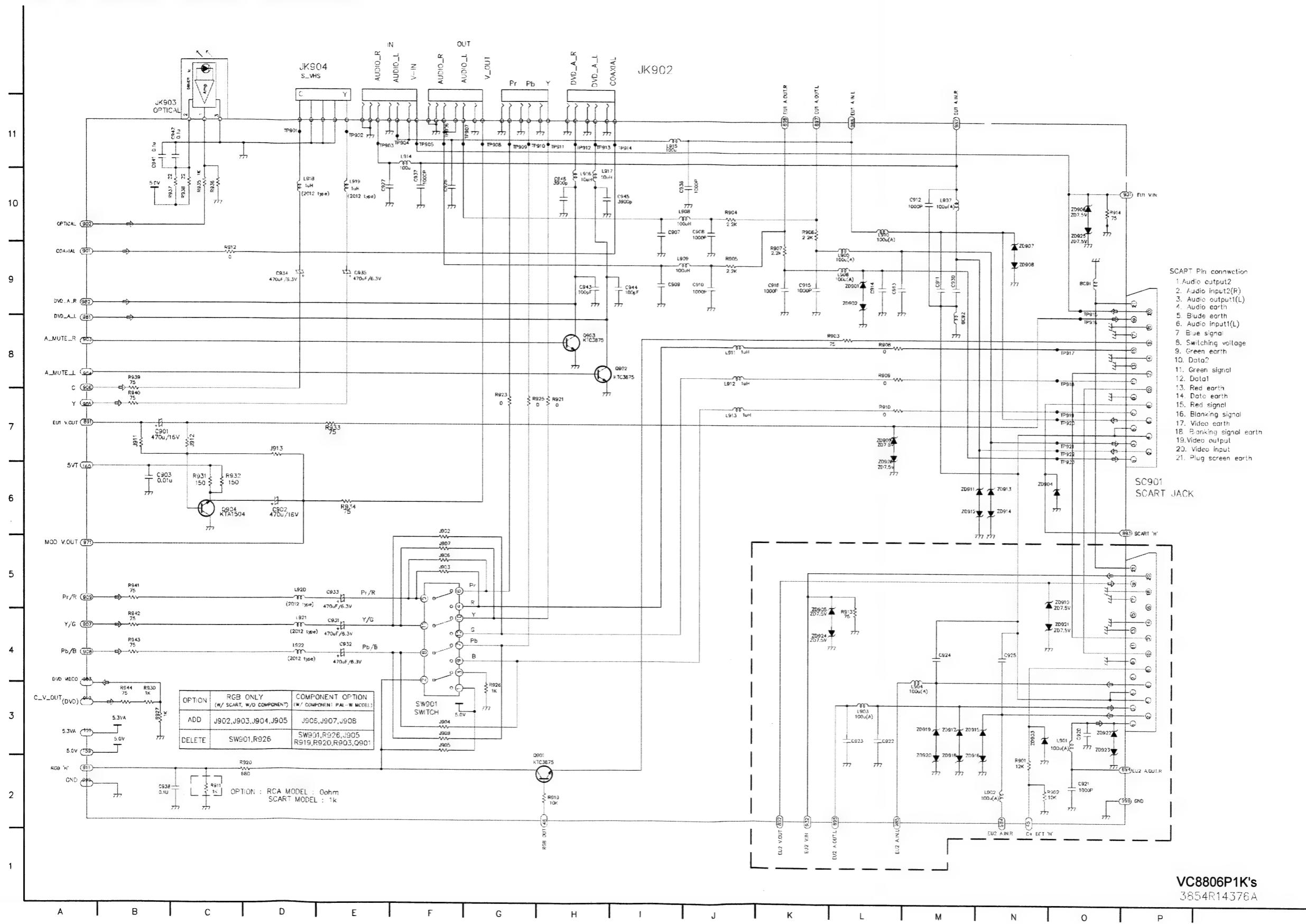
4. A/V CIRCUIT DIAGRAM



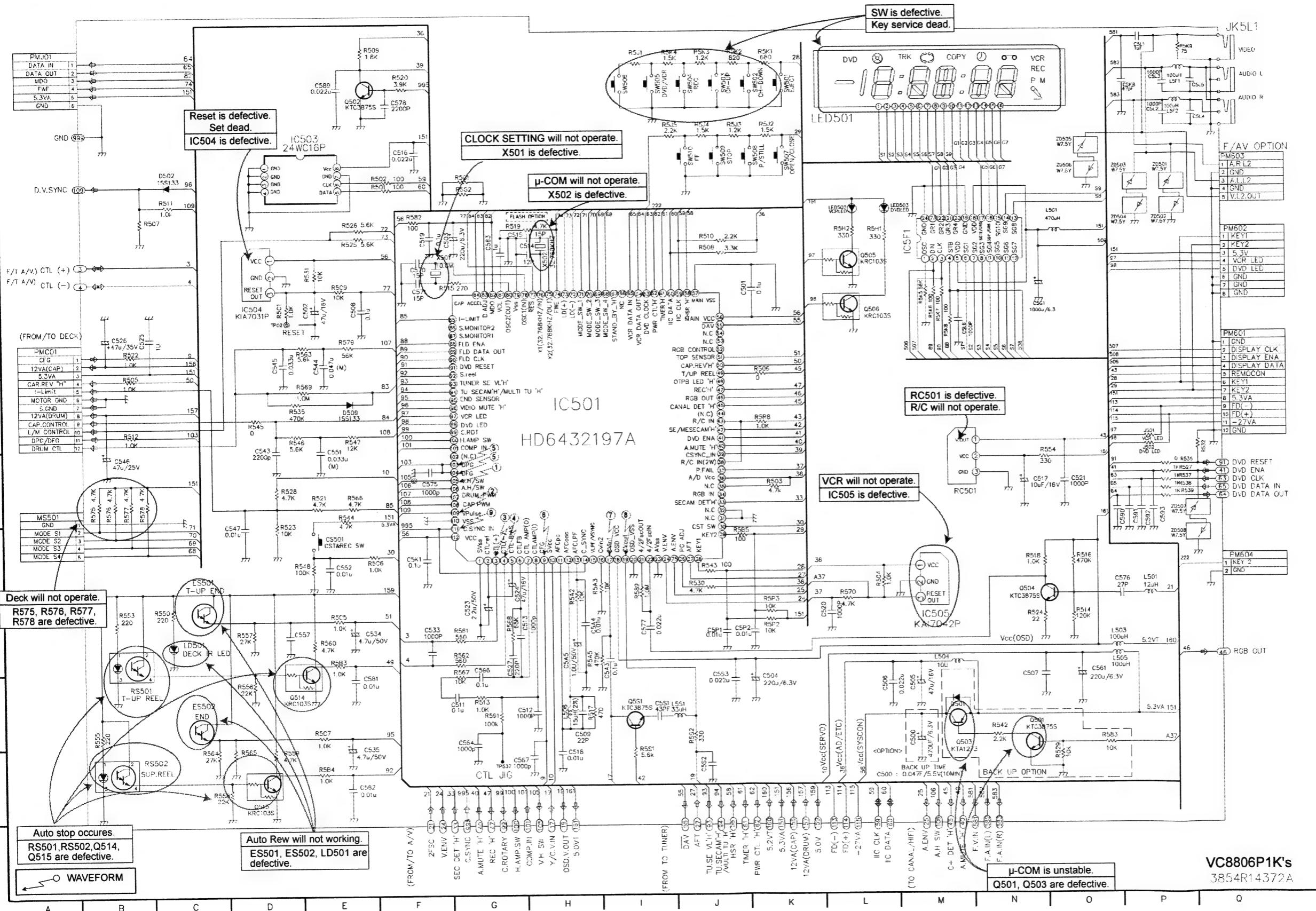
5. Hi-Fi CIRCUIT DIAGRAM



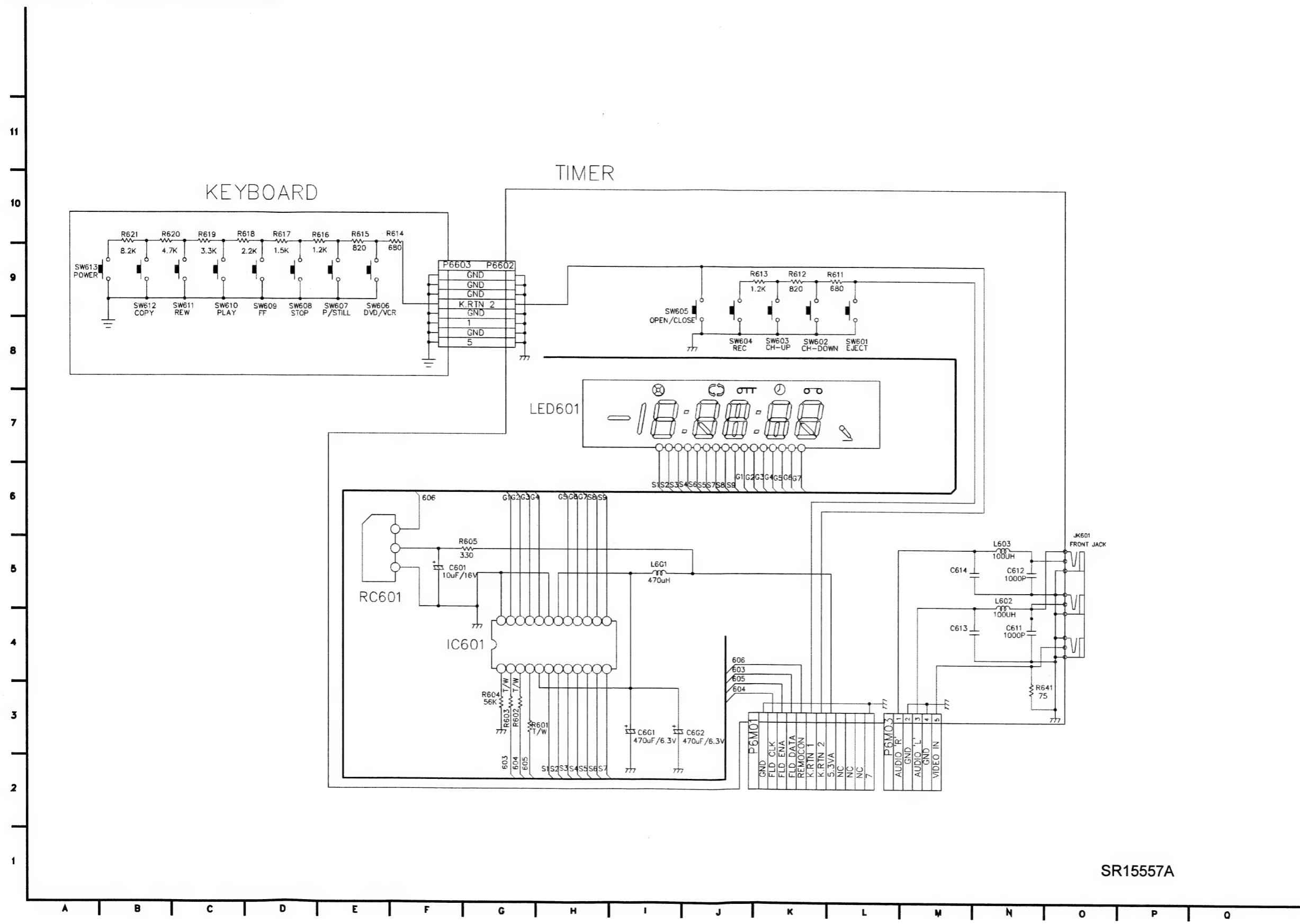
6. SCART(JACK) CIRCUIT DIAGRAM



7. SYSTEM CIRCUIT DIAGRAM



8. TIMER CIRCUIT DIAGRAM

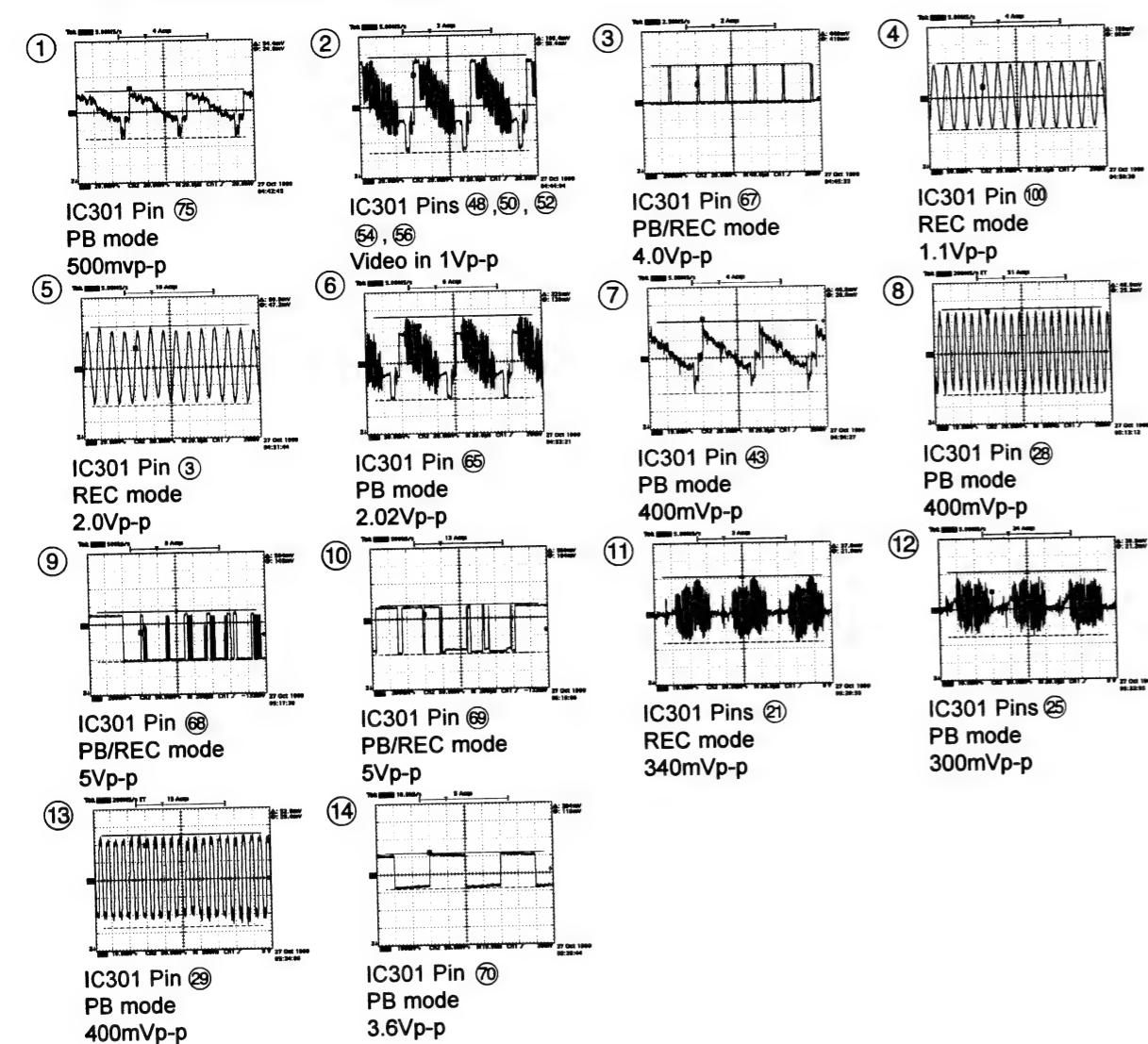


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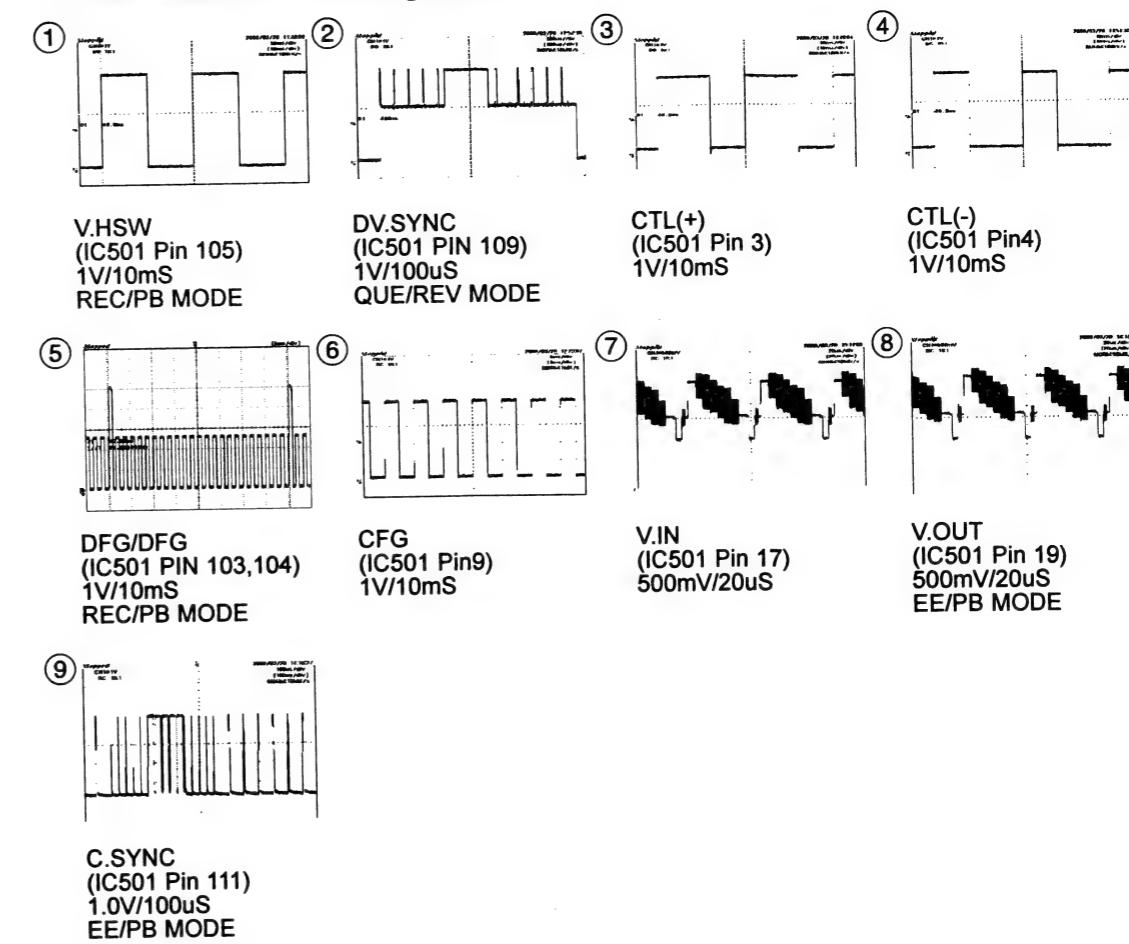
3-4

WAVEFORM & VOLTAGE SHEET

★ IC301 Oscilloscope Waveform



* IC501 Waveform Photographs



• CIRCUIT VOLTAGE CHART

MODE PIN NO.	EE	PB	REC
IC 201			
1	2.36 V	2.35 V	2.32 V
2	2.4 V	2.35 V	2.4 V
3	3.5 V	3.49 V	3.5 V
4	2.43 V	2.41 V	2.38 V
5	0.002 V	0.005 V	0.006 V
6	0.4 V	3.7 V	0.39 V
7	0.003 V	0.003 V	0.003 V
8	0.003 V	0.003 V	0.003 V
9	2.87 V	2.85 V	2.81 V
10	2.36 V	2.35 V	2.32 V
11	3.16 V	3.13 V	3 V
12	3 V	1.7 V	3.03 V
13	4 V	4 V	4 V
14	2.3 V	2.3 V	2.25 V
15	2.98 V	1.78 V	2.93 V
16	3.2 V	3.2 V	3.2 V
17	0.15 V	3.86 V	0.017 V
18	0.124 V	3.38 V	0.127 V
19	2.23 V	2.23 V	2.23 V
20	3 V	3.3 V	3.3 V
21	1.84 V	2.34 V	2.35 V
22	4.71 V	0.002 V	0.007 V
23	4.72 V	4.69 V	4.64 V
24	4.72 V	4.69 V	4.63 V
25	2.37 V	2.26 V	2.37 V
26	2.37 V	2.25 V	2.36 V
27	3 V	2.86 V	3 V
28	0.182 V	0.187 V	0.182 V
29	0.46 V	0.62 V	0.85 V
30	1.95 V	1.94 V	1.91 V
IC 301			
1	4.8 V	4.84 V	0.99 V
2	0.11 V	0.014 V	0.81 V
3	2.16 V	2.16 V	2.03 V
4	0.69 V	0.63 V	1.73 V
5	2.15 V	2.15 V	2.26 V
6	2.16 V	2.15 V	2.06 V
7	2.15 V	2.15 V	2.1 V
8	2.15 V	2.15 V	2.1 V
9	2.14 V	2.14 V	2.73 V
10	2.16 V	2.16 V	2.66 V
11	2.23 V	2.27 V	2.8 V
12	1.56 V	0.002 V	2.0 V
13	2.14 V	2.14 V	0.095 V
14	0.022 V	0.022 V	2.05 V
15	2.14 V	2.14 V	2.08 V
16	4.85 V	0.146 V	4.68 V
17	2.14 V	2.14 V	2.09 V
18	4.8 V	4.86 V	4.73 V
19	3.88 V	3.92 V	2.72 V
20	2.31 V	0.003 V	0.006 V
21	3 V	1.68 V	3.02 V
22	3.2 V	2.62 V	3.2 V
23	3.2 V	2.55 V	3.2 V

MODE PIN NO.	EE	PB	REC
IC 201			
24	4.85 V	4.85 V	4.75 V
25	0.121 V	3.4 V	0.19 V
26	1.65 V	1.25 V	1.6 V
27	2.16 V	2.1 V	2.14 V
28	3.75 V	3.7 V	3.66 V
29	2.43 V	2.46 V	2.34 V
30	0.002 V	0.002 V	0.005 V
31	4.76 V	4.58 V	4.72 V
32	4.68 V	4.58 V	4.71 V
33	2.88 V	2.86 V	2.8 V
34	0.061 V	0.06 V	0.061 V
35	3.02 V	2.34 V	2.99 V
36	3.5 V	2.84 V	3.4 V
37	1.7 V	1.76 V	1.61 V
38	2 V	2.05 V	1.94 V
39	8.65 V	8.6 V	8.38 V
40	0.002 V	0.003 V	0.006 V
41	0.002 V	0.003 V	0.006 V
42	4.8 V	4.8 V	4.68 V
43	2.4 V	2.67 V	2.17 V
44	13.8 mV	3.86 V	0.03 V
45	2.5 V	2.52 V	2.55 V
46	2.6 V	2.78 V	2.64 V
47	4.14 V	4.14 V	4.14 V
48	3.3 V	3.09 V	3.30 V
49	2.97 V	2.93 V	3.69 V
50	1.93 V	1.92 V	1.92 V
51	0.002 V	0.003 V	0.005 V
52	1.93 V	1.93 V	1.92 V
53	2.33 V	2.33 V	2.34 V
54	1.93 V	1.92 V	1.92 V
55	5.14 V	5.14 V	5.13 V
56	2.24 V	2.57 V	2.22 V
57	1.95 V	2.28 V	0.006 V
58	3 V	2.55 V	3.01 V
59	2.9 V	2.93 V	2.92 V
60	1.47 V	1.54 V	1.48 V
61	1.8 V	2.44 V	1.79 V
62	0.087 V	0.09 V	0.088 V
63	1.8 V	2.55 V	1.78 V
64	0.002 V	0.003 V	0.006 V
65	1.71 V	0.002 V	1.69 V
66	0.002 V	0.003 V	0.006 V
67	0.005 V	0.07 V	0.44 V
68	4.8 V	4.8 V	4.78 V
69	4.7 V	4.7 V	4.7 V
70	7.75 V	2.55 V	5.55 V
71	5.55 V	0.008 V	0.008 V
72	4.84 V	4.8 V	4.72 V
73	2.21 V	2.2 V	2.24 V
74	2.45 V	2.6 V	2.43 V
75	2.38 V	0.72 V	2.38 V
76	2.4 V	0.81 V	2.39 V
77	1.58 V	1.6 V	1.48 V
78	2.44 V	3.35 V	2.33 V

MODE PIN NO.	EE	PB	REC
IC 5F1			
1	2.33 V	2.31 V	2.3 V
2	4.98 V	4.9 V	4.9 V
3	5 V	5 V	5 V
4	4.96 V	4.9 V	4.9 V
5	4.89 V	4.85 V	4.8 V
6	0.64 V	0.59 V	0.6 V
7	0.64 V	0.59 V	0.6 V
8	0.64 V	0.61 V	0.6 V
9	0.73 V	0.93 V	0.96 V
10	1 V	0.92 V	0.91 V
11	0.72 V	0.63 V	0.92 V
12	1.83 V	1.84 V	1.8 V
13	0.73 V	0.75 V	0.72 V
14	1.26 V	1.22 V	1.2 V
15	1.26 V	1.23 V	1.1 V
16	1.65 V	1.63 V	1.54 V
17	1.58 V	1.58 V	1.42 V
18	4.89 V	4.8 V	4.8 V
19	0.002 V	0.003 V	0.003 V
20	1.75 V	1.63 V	1.5 V
21	1.7 V	1.7 V	1.5 V
22	1.78 V	1.71 V	1.5 V
23	1.73 V	1.6 V	1.41 V
24	0.002 V	0.003 V	0.003 V
IC 501			
1	0.002 V	0.002 V	0.002 V
2	2.56 V	2.55 V	2.55 V
3	2.56 V	2.55 V	2.9 V
4	2.56 V	2.55 V	2 V
5	2.56 V	2.55 V	2.55 V
6	2.56 V	2.56 V	2.55 V
7	2.64 V	2.63 V	2.6 V
8	2.54 V	2.53 V	2.52 V
9	0.064 V	2.27 V	2.26 V
10	5.13 V	5.12 V	5.11 V
11	5.1 V	5.1 V	5.1 V
12	1.5 V	1.5 V	1.51 V
13	1.5 V	1.5 V	1.5 V
14	0.48 V	0.08 V	0.53 V
15	2.5 V	2.46 V	2.46 V
16	2.44 V	2.44 V	2.43 V
17	1.84 V	1.89 V	2.06 V
IC 751			
1	5.1 V	5.1 V	5.08 V
2	1.5 V	1.5 V	1.51 V
3	1.5 V	1.5 V	1.5 V
4	0.002 V	0.003 V	0.003 V
5	2.5 V	2.46 V	2.46 V
6	2.44 V	2.44 V	2.43 V
7	1.84 V	1.83 V	1.8 V
8	1.84 V	1.89 V	2.26 V

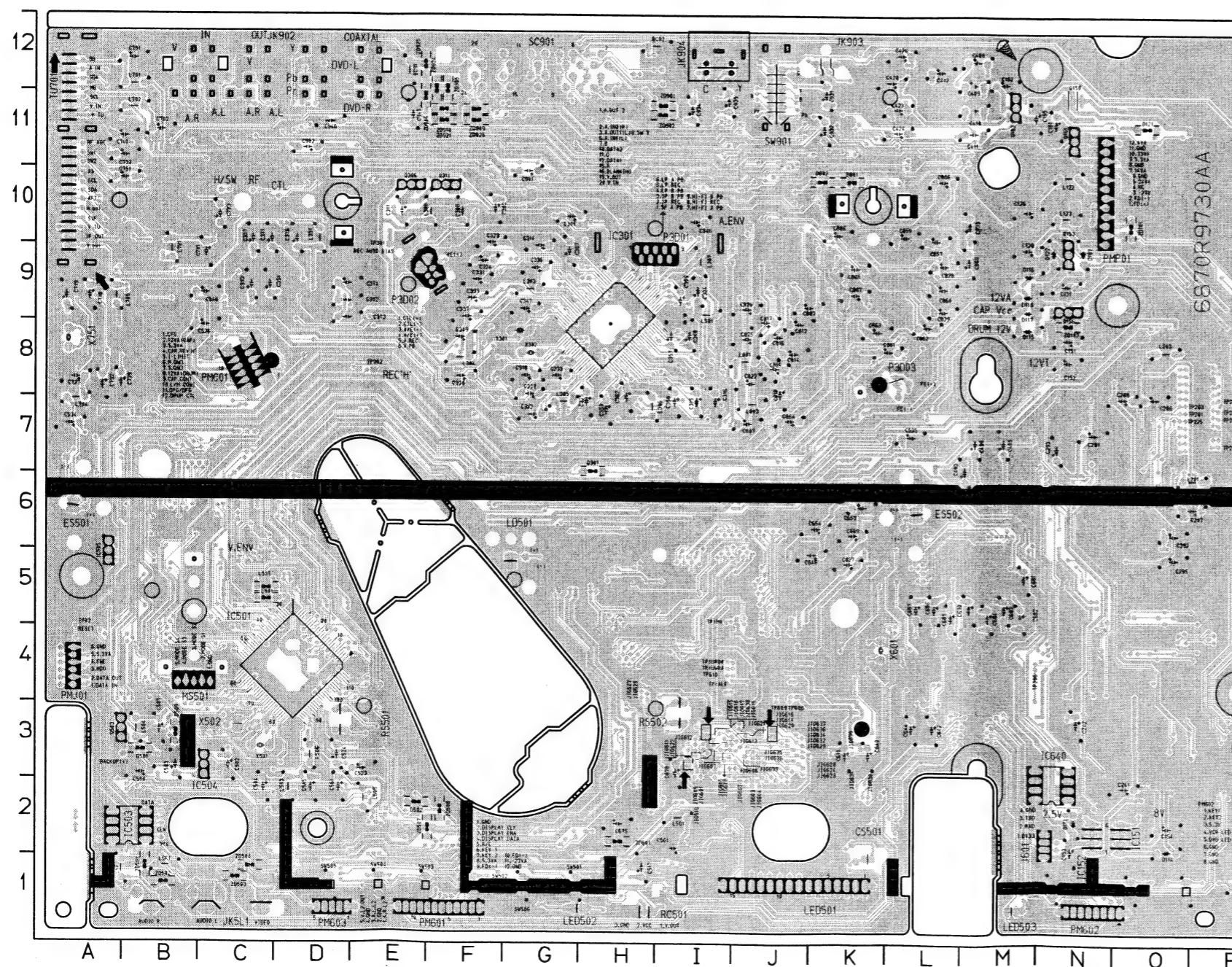
MODE PIN NO.	EE	PB	REC

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PIN	EE	PB	REC
Q301			
BASE	0.01 V	0.013 V	0.79 V
EMITER	0.003 V	0.004 V	0.005 V
COLECTOR	4.83 V	4.82 V	1.02 V
Q302			
BASE	4.85 V	4.18 V	4.75 V
EMITER	0.002 V	4.85 V	4.75 V
COLECTOR	(-)2.79 V	4.8 V	(-)25.5 V
Q303			
BASE	(-)2.76 V	0.7 V	(-)25.6 V
EMITER	(-)0.8 V	0.007 V	(-)19.13 V
COLECTOR	0.002 V	0.012 V	0.004 V
Q304			
BASE	(-)2.62 V	0.72 V	(-)25.4 V
EMITER	0.002 V	0.002 V	(-)19.4 V
COLECTOR	0.002 V	0.004 V	0.004 V
Q305			
BASE	1.71 V	1.41 V	1.7 V
EMITER	2.41 V	2.1 V	2.39 V
COLECTOR	0.003 V	0.004 V	0.005 V
Q309			
BASE	2.18 V	2.01 V	2.33 V
EMITER	2.87 V	2.7 V	3 V
COLECTOR	0.012 V	0.005 V	0.012 V
Q501			
BASE	0.69 V	0.69 V	0.69 V
EMITER	0.002 V	0.003 V	0.003 V
COLECTOR	0.02 V	0.012 V	0.023 V
Q502			
BASE	0.31 V	0.38 V	0.33 V
EMITER	0.004 V	0.004 V	0.004 V
COLECTOR	2.65 V	1.93 V	2.4 V
Q504			
BASE	0.59 V	0.51 V	0.50 V
EMITER	0.03 V	0.03 V	0.03 V
COLECTOR	3.78 V	3.75 V	3.71 V
Q5S1			
BASE	0.006 V	0.005 V	0.003 V
EMITER	1.77 V	1.8 V	1.89 V
COLECTOR	2.41 V	2.1 V	2.4 V
Q515			
BASE	4.94 V	0.5~4.3 V	0.4~4.9 V
EMITER	0.002 V	0.003 V	0.005 V
COLECTOR	0.02 V	0.2~3.5 V	0.4~4.9 V
Q514			
BASE	4.96 V	0.8~4.2 V	0.2~4.3 V
EMITER	0.002 V	0.002 V	0.003 V
COLECTOR	0.02 V	0.01~4.8V	0.011 V
Q7S1			
BASE	0.007 V	0.007 V	0.008 V
EMITER	0.001 V	0.001 V	0.001 V
COLECTOR	3.7 V	3.5 V	0.057 V
Q801			
BASE	0.7 V	(-)0.1 V	0.01 V
EMITER	0.001 V	0.003 V	0.001 V

PRINTED CIRCUIT DIAGRAMS

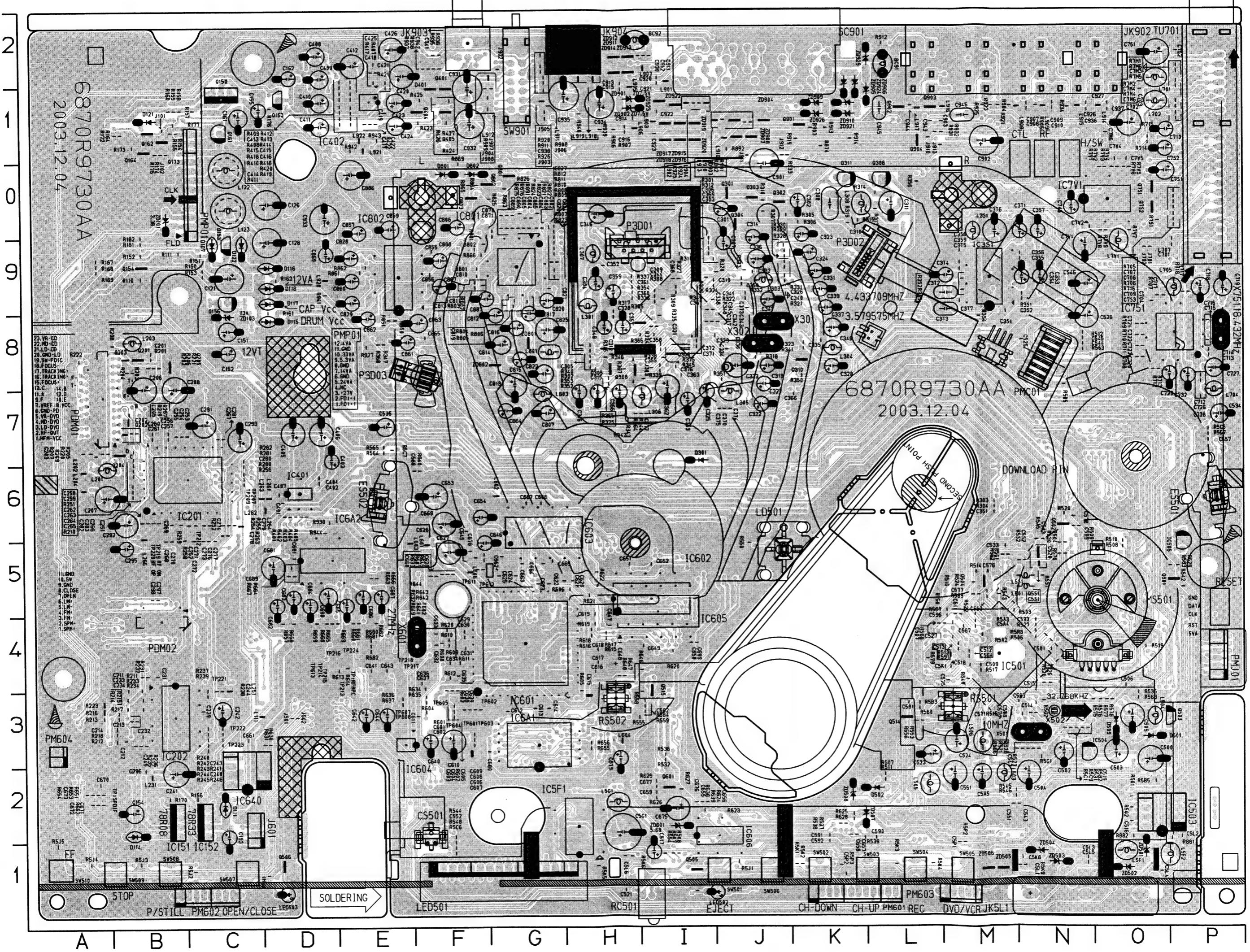
1. MAIN P.C.BOARD (VCR+DVD)_SOLDER SIDE

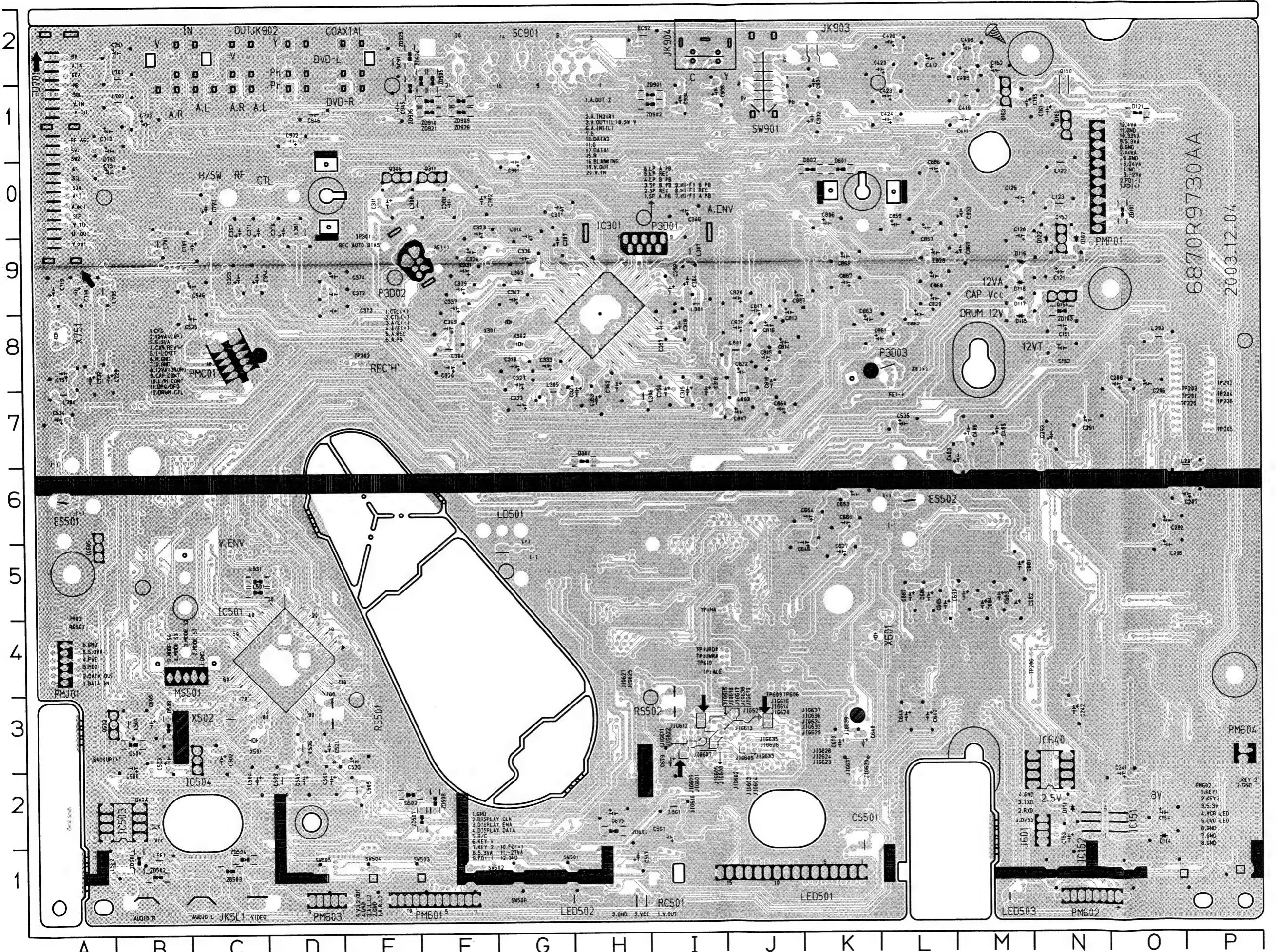


3-

LOCATION GUIDE			
H/SW/TP C10	PIN0244_N6	PIN0431	PIN0431
JC1031	PIN0250_N6	PIN0432	PIN0432
JCS01	PIN0251_N7	PIN0450	PIN0450
JG601	PIN0299_G9	PIN0472	PIN0472
JG602	J2 PIN0329_G9	PIN0473	PIN0473
JG603	J2 PIN0303_G9	PIN0474	PIN0474
JG604	J2 PIN0304_G8	PIN0476	PIN0476
JG605	J3 PIN0306_I8	PIN0477	PIN0477
JG606	J3 PIN0307_I8	PIN0493	PIN0493
JG607	J3 PIN0309_I8	PIN0600	PIN0600
JG608	J3 PIN0310_I8	PIN0601	PIN0601
JG609	J3 PIN0311_I8	PIN0602	PIN0602
JG610	J3 PIN0312_I8	PIN0603	PIN0603
JG611	J3 PIN0315_I9	REC+TP	REC+TP
JG612	J3 PIN0316_I9	RF+TP	RF+TP
JG613	J3 PIN0319_H9	TP02	TP02
JG614	J3 PIN0327_D5	TP109	TP109
JG615	J3 PIN0328_D5	TP110	TP110
JG616	J3 PIN0332_C5	TP111	TP111
JG617	J3 PIN0333_C8	TP112	TP112
JG618	J3 PIN0335_C8	TP201	TP201
JG619	J3 PIN0336_C5	TP202	TP202
JG620	J3 PIN0340_C4	TP203	TP203
JG621	J3 PIN0342_C5	TP204	TP204
JG622	J3 PIN0343_C5	TP205	TP205
JG623	J2 PIN0346_B5	TP206	TP206
JG624	J3 PIN0350_B4	TP225	TP225
JG625	H4 PIN0351_C4	TP226	TP226
JG626	J3 PIN0352_B4	TP537	TP537
JG627	H4 PIN0353_B4	TP606	TP606
JG628	J3 PIN0354_B4	TP609	TP609
JG629	J3 PIN0360_D3	TP610	TP610
JG630	K2 PIN0363_D3	TP701	TP701
JG631	K2 PIN0364_E2	TP901	TP901
JG632	J3 PIN0365_E2	TP902	TP902
JG633	J3 PIN0366_E2	TP903	TP903
JG634	J3 PIN0367_E2	TP904	TP904
JG635	J3 PIN0368_E2	TP905	TP905
JG636	J3 PIN0369_E4	TP906	TP906
JG637	J3 PIN0370_E4	TP907	TP907
JG638	J3 PIN0372_D6	TP908	TP908
JG639	K3 PIN0411_I6	TP909	TP909
PIN0010_C5	PIN0414_I5	TP910	TP910
PIN0012_D4	PIN0415_I5	TP911	TP911
PIN0042_H9	PIN0416_I6	TP912	TP912
PIN0043_H9	PIN0417_H5	TP913	TP913
PIN0056_G8	PIN0418_H4	TP914	TP914
PIN0062_G9	PIN0419_H4	TP915	TP915
PIN0064_H4	PIN0420_I5	TP916	TP916
PIN0069_I6	PIN0421_I6	TP917	TP917
PIN0071_H7	PIN0422_H4	TP918	TP918
PIN0072_H8	PIN0423_H4	TP919	TP919
PIN0086_C3	PIN0424_H5	TP920	TP920
PIN0098_D4	PIN0425_J4	TP921	TP921
PIN0105_D3	PIN0426_J5	TP922	TP922
PIN0107_F2	PIN0427_J5	TP923	TP923
PIN0121_H2	PIN0428_J5	TP+ALE	TP+ALE
PIN0122_G2	PIN0429_J5	TP+MA	TP+MA
PIN0124_F2	PIN0430_J5	TP+URD	TP+URD
PIN0243_N6	PIN0431_J5	TP+UWR	TP+UWR

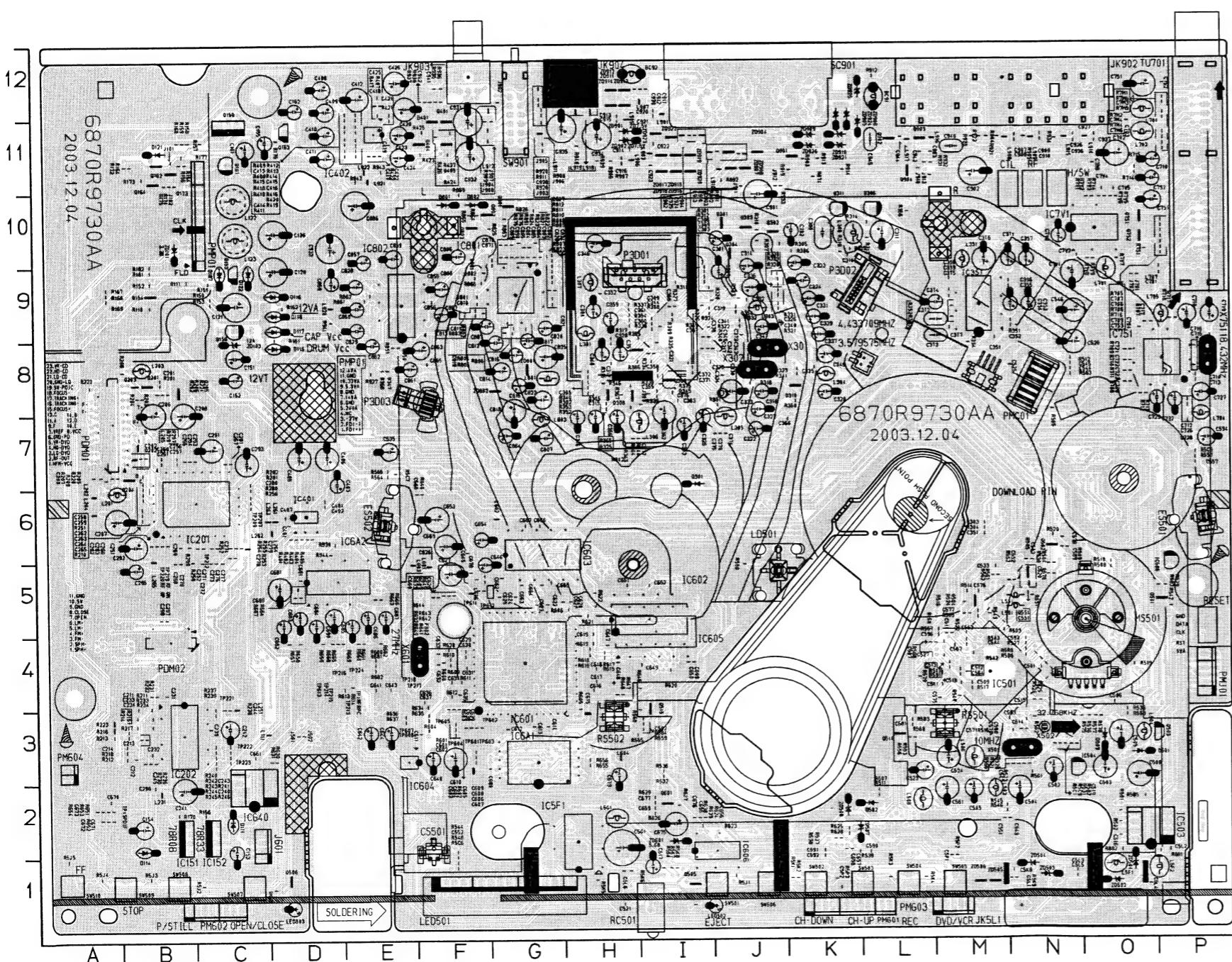
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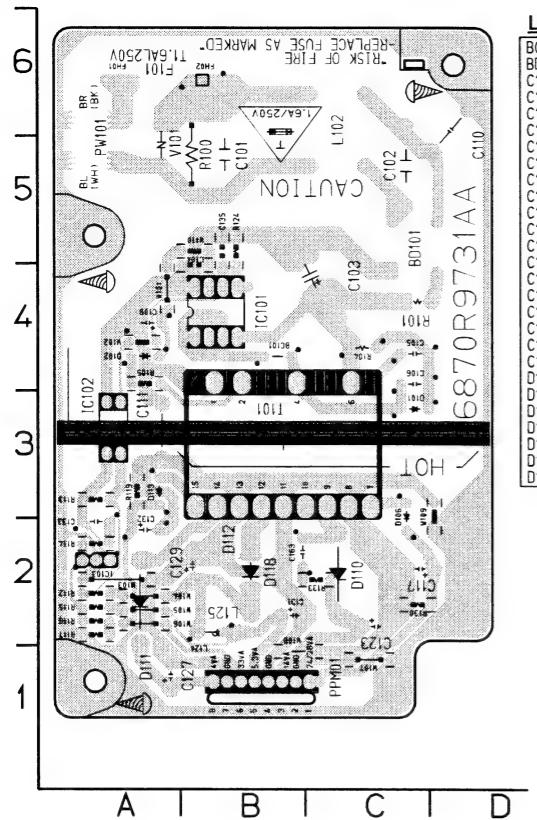
LOCATION GUIDE			
YSW±TP C10	PIN0244 N6	PIN0432 J5	
I3C01 H8	PIN0250 N6	PIN0433 J5	
I5C01 D4	PIN0251 N7	PIN0459 K4	
IG601 I3	PIN0299 G9	PIN0473 H4	
IG602 J2	PIN0302 G9	PIN0474 H4	
IG603 J2	PIN0303 G9	PIN0475 H4	
IG604 J2	PIN0304 G8	PIN0476 H4	
IG605 I3	PIN0305 I8	PIN0477 H4	
IG606 J3	PIN0307 I8	PIN0494 G2	
IG607 I3	PIN0309 I8	PIN0600 N6	
IG608 I3	PIN0310 I8	PIN0601 N4	
IG609 I3	PIN0311 I8	PIN0602 M6	
IG610 I3	PIN0312 I8	PIN0603 L5	
IG611 I3	PIN0315 I9	REC±TP C6	
IG612 I3	PIN0316 I9	RF±TP C10	
IG613 J3	PIN0319 H9	TP02 A4	
IG614 I3	PIN0327 D5	TP109 02	
IG615 I3	PIN0328 D5	TP110 14	
IG616 I3	PIN0332 C5	TP111 14	
IG617 I3	PIN0333 C6	TP112 N2	
IG618 I3	PIN0335 C5	TP201 07	
IG619 J3	PIN0336 C5	TP202 P8	
IG620 I3	PIN0340 C4	TP203 07	
IG621 J3	PIN0342 C5	TP204 P7	
IG622 I3	PIN0343 C5	TP205 P7	
IG623 J2	PIN0346 B5	TP206 M4	
IG624 J3	PIN0350 B4	TP225 07	
IG625 H4	PIN0351 C4	TP226 P7	
IG626 J3	PIN0352 B4	TP537 D10	
IG627 H4	PIN0353 B4	TP606 J4	
IG628 J3	PIN0354 B4	TP609 J4	
IG629 J3	PIN0360 D3	TP610 14	
IG630 K2	PIN0363 D3	TP701 A10	
IG631 K2	PIN0364 E2	TP901 I12	
IG632 J3	PIN0365 E2	TP902 I12	
IG633 J3	PIN0366 E2	TP903 B11	
IG634 J3	PIN0367 E2	TP904 C11	
IG635 J3	PIN0368 E2	TP905 B12	
IG636 J3	PIN0369 E4	TP906 C11	
IG637 J3	PIN0370 E4	TP907 C11	
IG638 I3	PIN0372 D6	TP908 C12	
IG639 K3	PIN0411 I5	TP909 D11	
IN0010 C5	PIN0414 I5	TP910 D12	
IN0012 D4	PIN0415 I5	TP911 D12	
IN0042 H9	PIN0416 I6	TP912 D11	
IN0043 H9	PIN0417 H5	TP913 D12	
IN0054 G8	PIN0418 H4	TP914 E12	
IN0062 G9	PIN0419 H4	TP915 E11	
IN0064 H8	PIN0420 I5	TP916 F12	
IN0066 I9	PIN0421 I6	TP917 G11	
IN0071 H7	PIN0422 H4	TP918 G11	
IN0072 H8	PIN0423 H4	TP919 G11	
IN0086 C3	PIN0424 H5	TP920 H12	
IN0098 D4	PIN0425 J4	TP921 I12	
IN0105 D3	PIN0426 J5	TP922 I12	
IN0107 F2	PIN0427 J5	TP923 H12	
IN0121 H2	PIN0428 J5	TP±ALE I4	
IN0122 G2	PIN0429 J5	TP±MA M5	
IN0124 F2	PIN0430 J5	TP±URD# 14	
IN0243 N6	PIN0431 J5	TP±UWR# 14	

2. MAIN P.C.BOARD (VCR+DVD)_COMPONENT SIDE



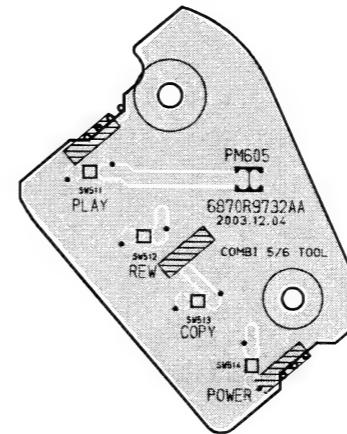
LOCATION GUIDE	
R65	F19
P5	F5
P56	F5
P57	F5
P58	F5
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P189	F5
P190	F5
P191	F5
P192	F5
P193	F5
P194	F5
P195	F5
P196	F5
P197	F5
P198	F5
P199	F5
P200	F5
P201	F5
P202	F5
P203	F5
P204	F5
P205	F5
P206	F5
P207	F5
P208	F5
P209	F5
P210	F5
P211	F5
P212	F5
P213	F5
P214	F5
P215	F5
P216	F5
P217	F5
P218	F5
P219	F5
P220	F5
P221	F5
P222	F5
P223	F5
P224	F5
P225	F5
P226	F5
P227	F5
P228	F5
P229	F5
P230	F5
P231	F5
P232	F5
P233	F5
P234	F5
P235	F5
P236	F5
P237	F5
P238	F5
P239	F5
P240	F5
P241	F5
P242	F5
P243	F5
P244	F5
P245	F5
P246	F5
P247	F5
P248	F5
P249	F5
P250	F5
P251	F5
P252	F5
P253	F5
P254	F5
P255	F5
P256	F5
P257	F5
P258	F5
P259	F5
P260	F5
P261	F5
P262	F5
P263	F5
P264	F5
P265	F5
P266	F5
P267	F5
P268	F5
P269	F5
P270	F5
P271	F5
P272	F5
P273	F5
P274	F5
P275	F5
P276	F5
P277	F5
P278	F5
P279	F5
P280	F5
P281	F5
P282	F5
P283	F5
P284	F5
P285	F5
P286	F5
P287	F5
P288	F5
P289	F5
P290	F5
P291	F5
P292	F5
P293	F5
P294	F5
P295	F5
P296	F5
P297	F5
P298	F5
P299	F5
P300	F5
P301	F5
P302	F5
P303	F5
P304	F5
P305	F5
P306	F5
P307	F5
P308	F5
P309	F5
P310	F5
P311	F5
P312	F5
P313	F5
P314	F5
P315	F5
P316	F5
P317	F5
P318	F5
P319	F5
P320	F5
P321	F5
P322	F5
P323	F5
P324	F5
P325	F5
P326	F5
P327	F5
P328	F5
P329	F5
P330	F5
P331	F5
P332	F5
P333	F5
P334	F5
P335	F5
P336	F5
P337	F5
P338	F5
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P344	F5
P345	F5
P346	F5
P347	F5
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P387	F5
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P398	F5
P399	F5
P400	F5
P401	F5
P402	F5
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P404	F5
P405	F5
P406	F5
P407	F5
P408	F5
P409	F5
P410	F5
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P412	F5
P413	F5
P414	F5
P415	F5
P416	F5
P417	F5
P418	F5
P419	F5
P420	F5
P421	F5
P422	F5
P423	F5
P424	F5
P425	F5
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P427	F5
P428	F5
P429	F5
P430	F5
P431	F5
P432	F5
P433	F5
P434	F5
P435	F5
P436	F5
P437	F5
P438	F5
P439	F5
P440	F5
P441	F5
P442	F5
P443	

2. SMPS P.C.BOARD

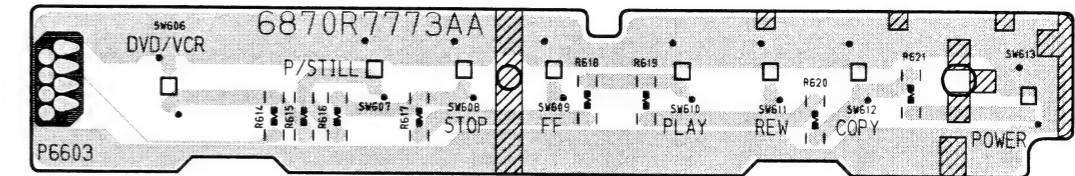


3. KEY P.C.BOARD

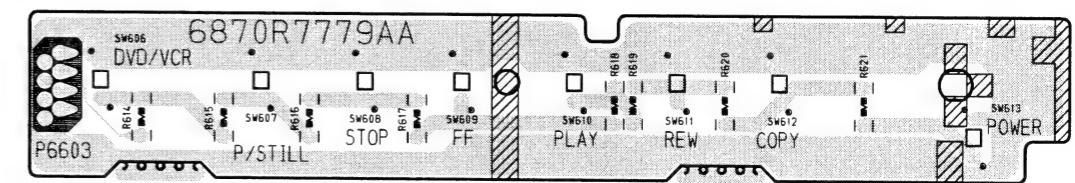
(5TOOL)



(7TOOL)

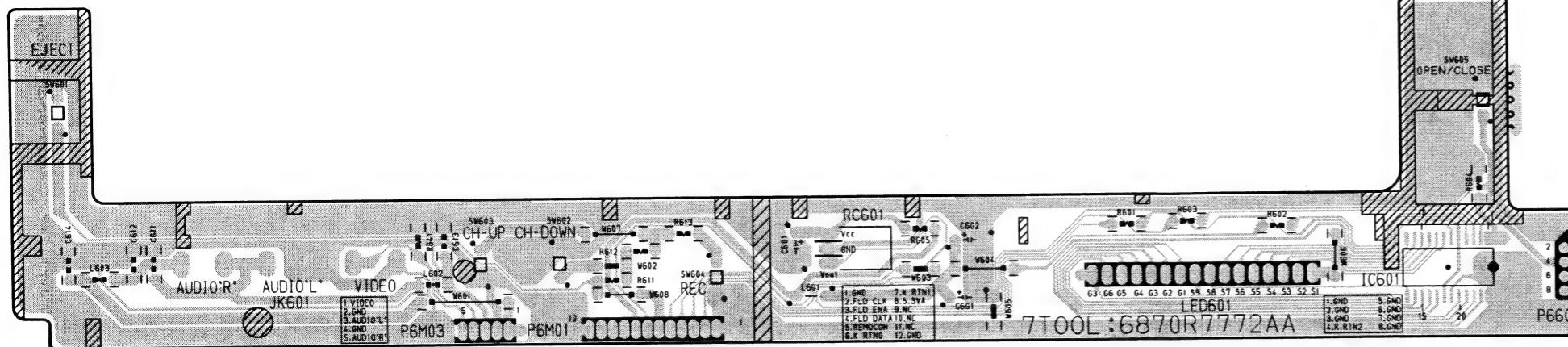


(8TOOL)

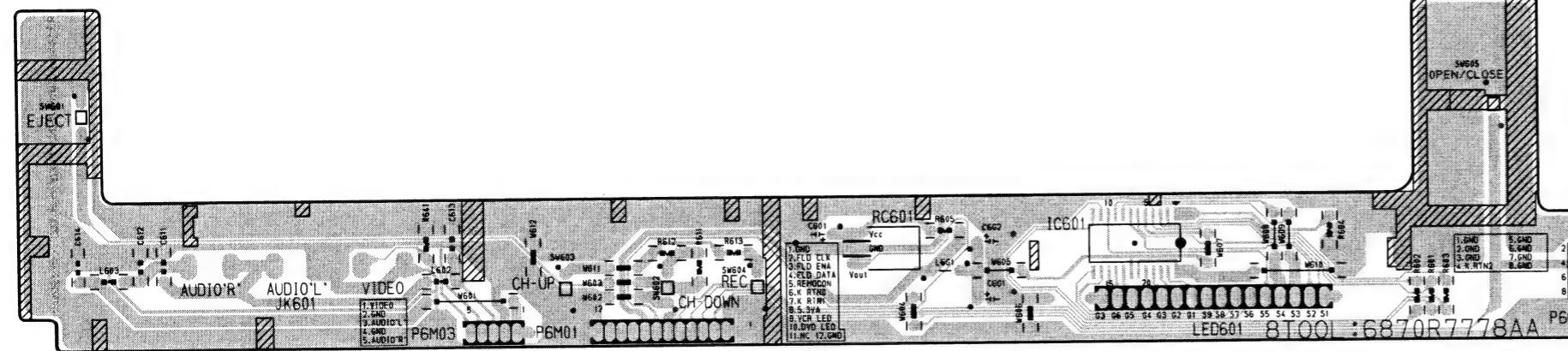


4. TIMER P.C.BOARD

(7TOOL)

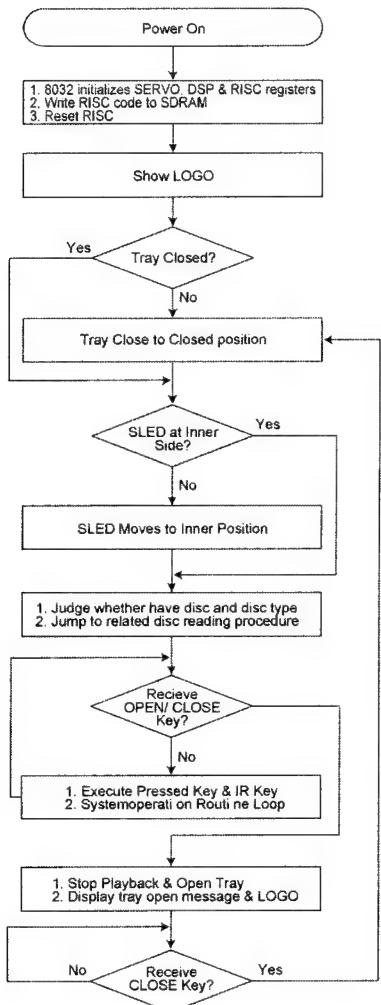


(8TOOL)

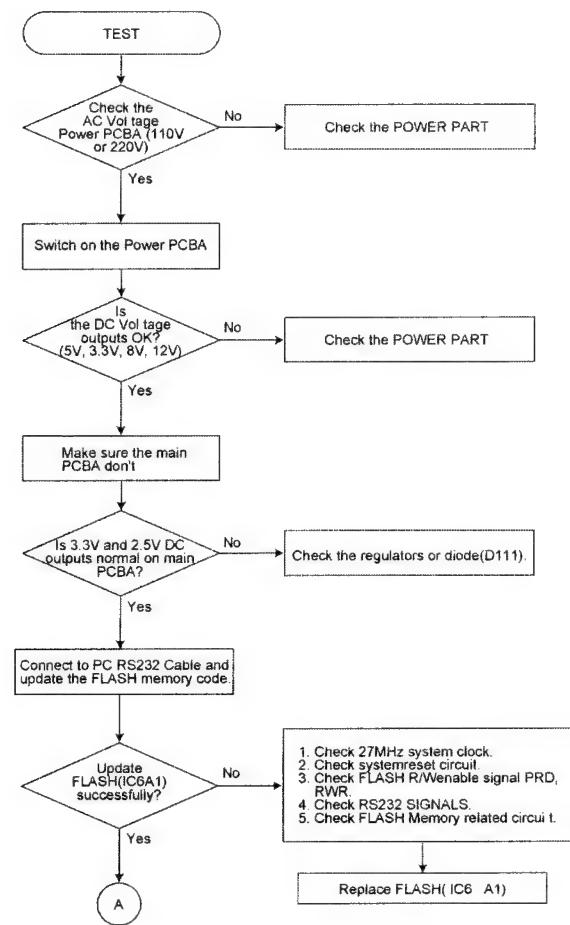


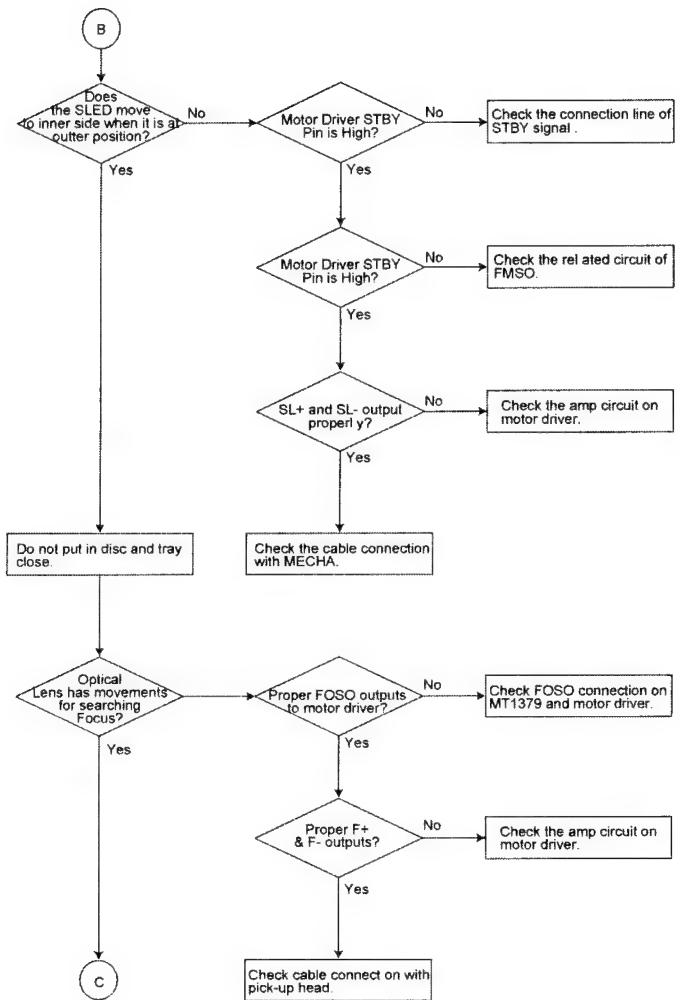
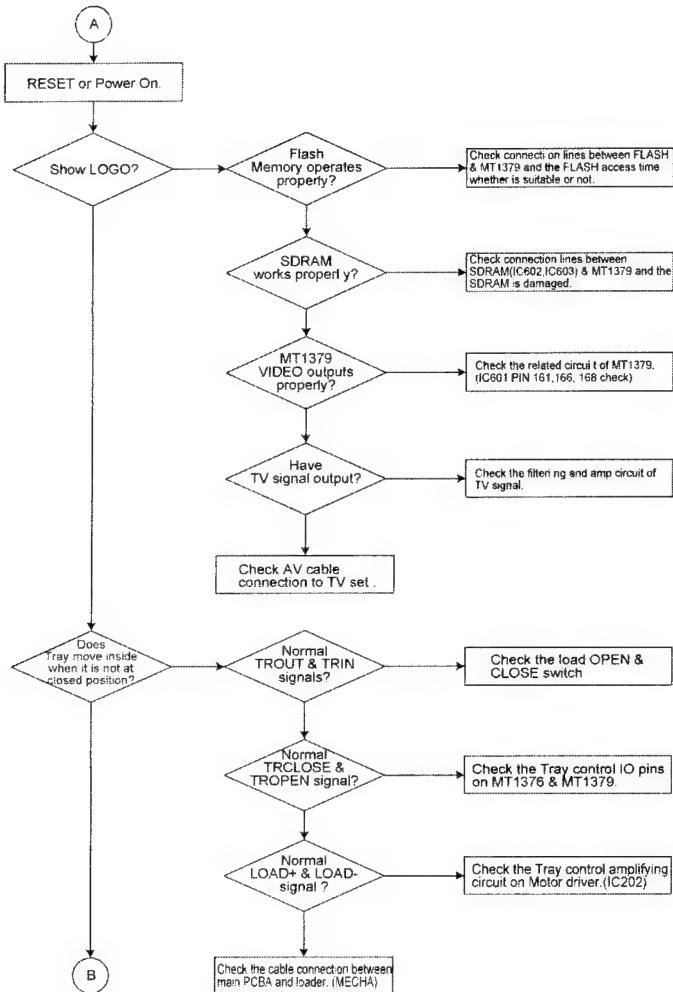
DVD PART ELECTRICAL TROUBLESHOOTING GUIDE

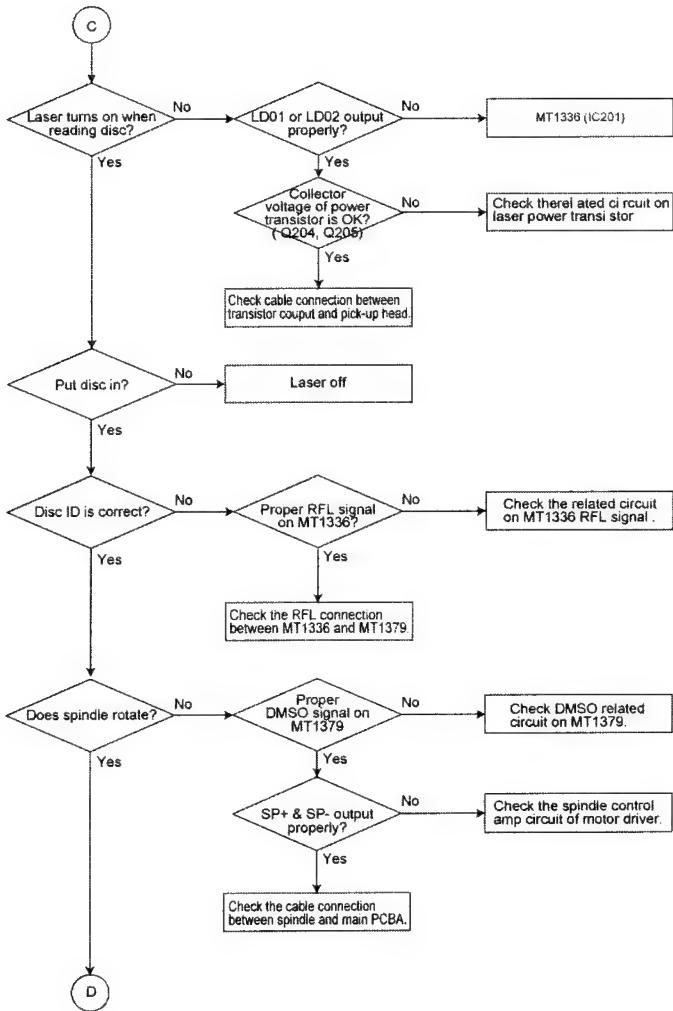
1. System operation flow



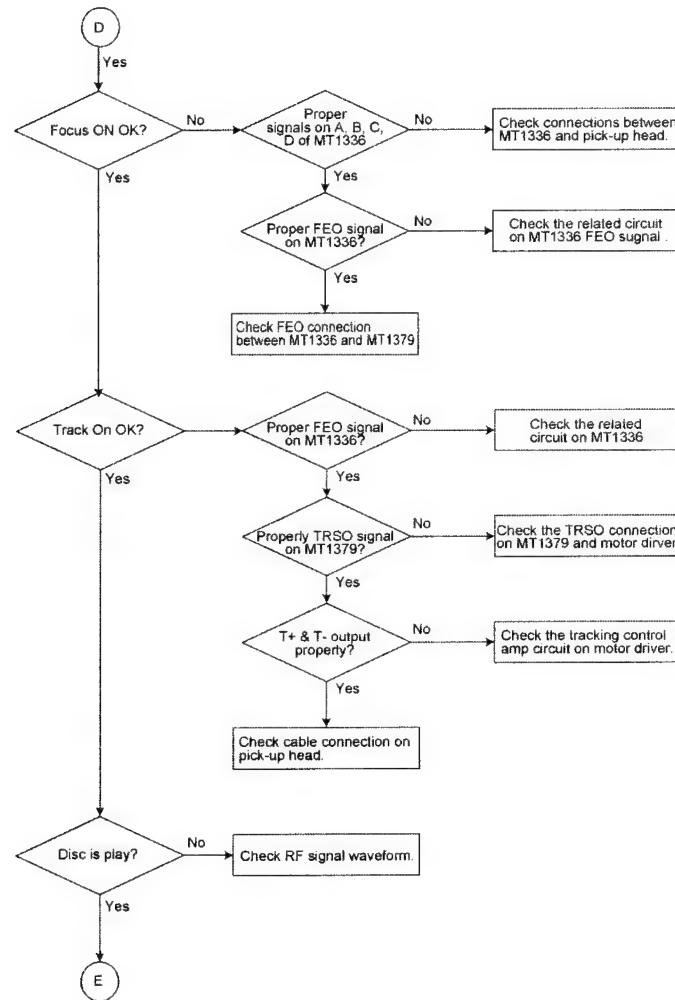
2. Test & debug flow





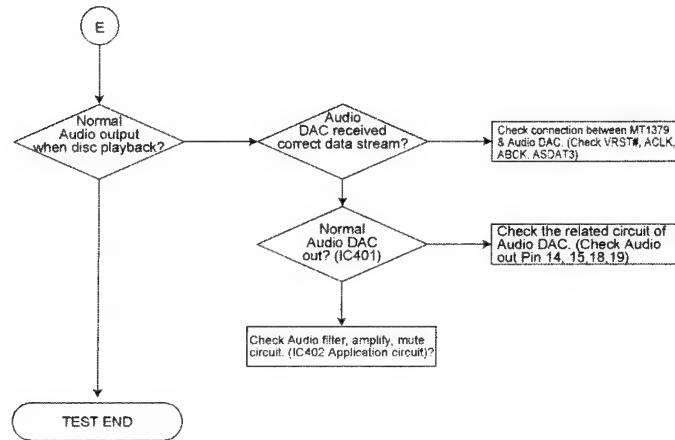


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DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING



1. SYSTEM 27MHz CLOCK,RESET,FLASH R/W SIGNAL

1) MT1379 main clock is at 27MHz(X501)

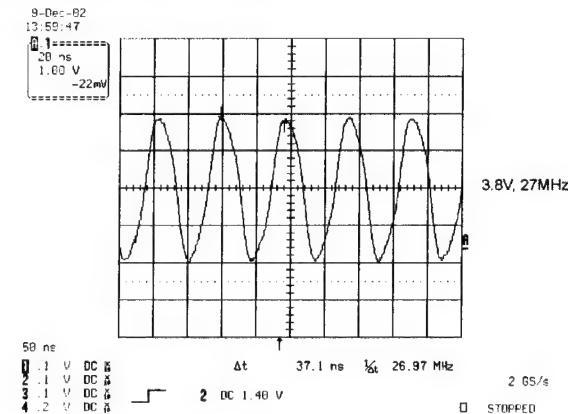


FIG 1-1

2) MT1379 & MT1336 reset is high active.

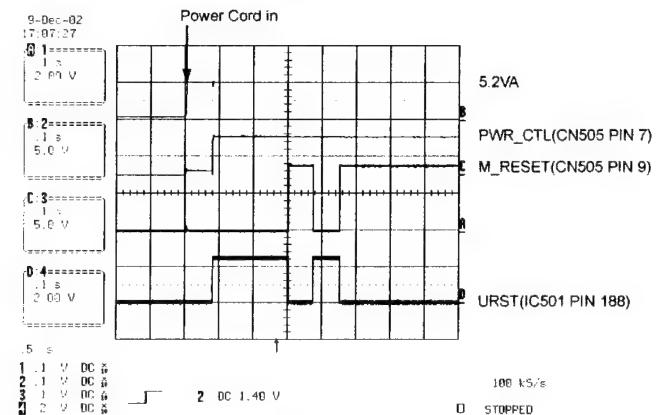
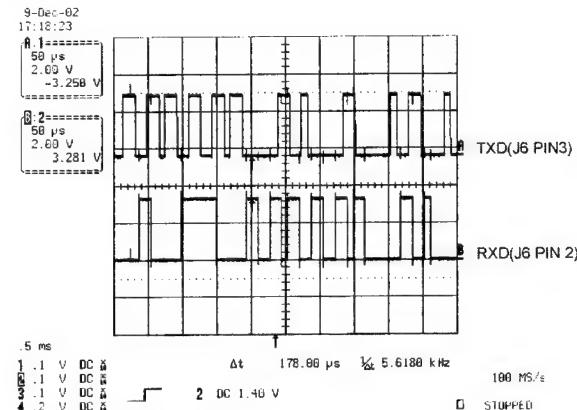


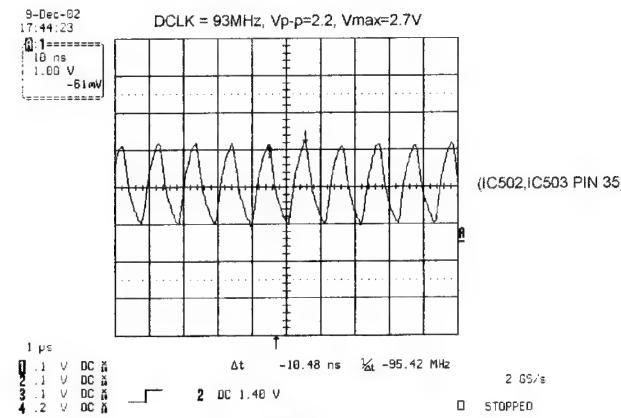
FIG 1-2

3) RS232 waveform during procedure(Downloading)



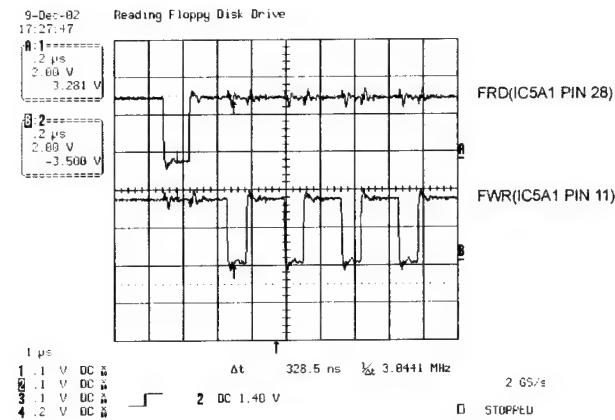
2. SDRAM CLOCK

1) MT1379 main clock is at 27MHz(X501)

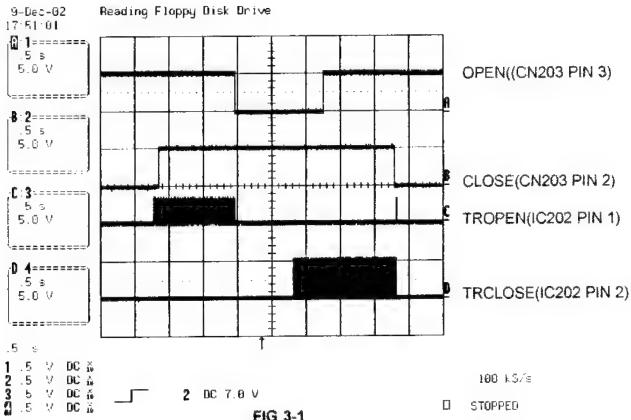


3. TRAY OPEN/CLOSE SIGNAL

1) Tray open/close waveform



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4. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)

2) Tray close waveform

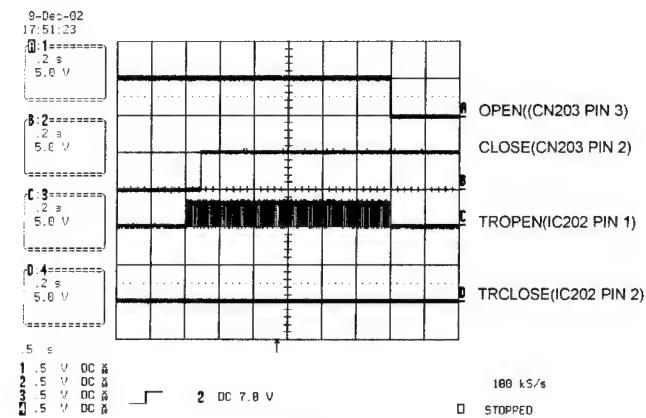


FIG 3-2

3) Tray open waveform

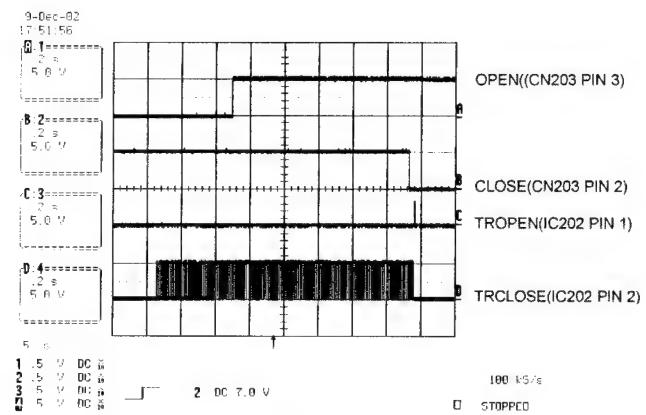


FIG 3-3

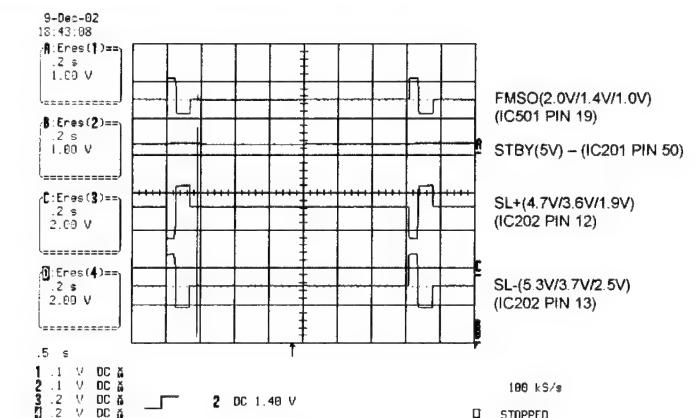


FIG 4-1

5. LENS CONTROL RELATED SIGNAL(NO DISC CONDITION)

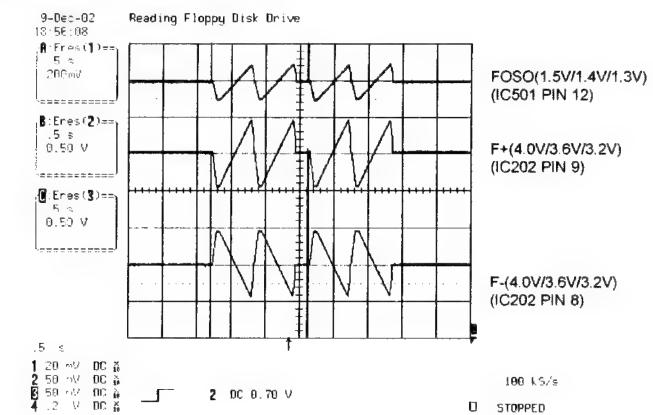


FIG 5-1

6. LASER POWER CONTROL RELATED SIGNAL(NO DISC CONDITION)

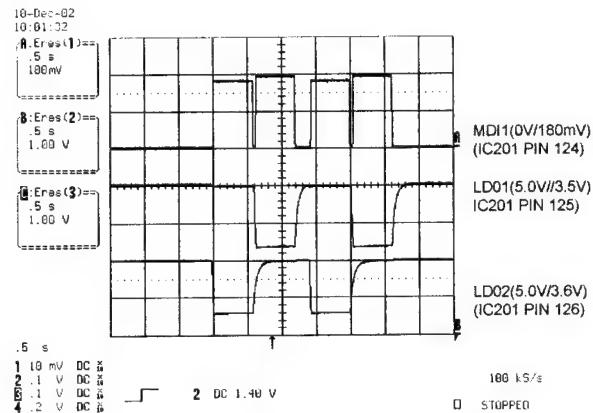


FIG 6-1

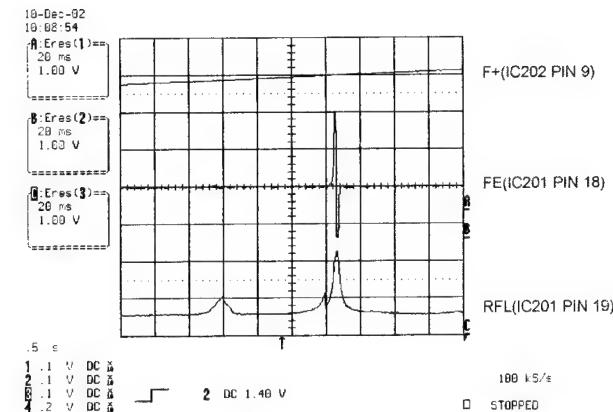


FIG 7-2 (DVD)

7. DISC TYPE JUDGEMENT WAVEFORM

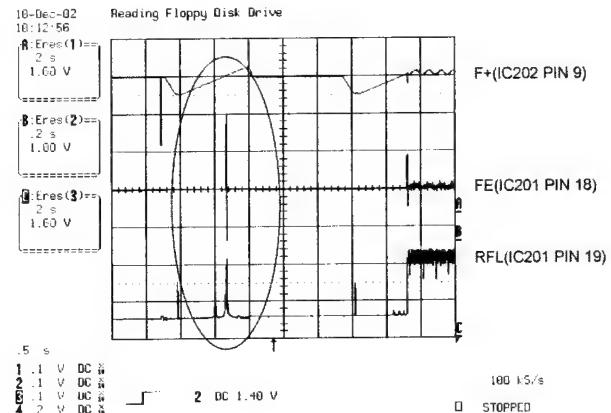


FIG 7-1 (DVD)

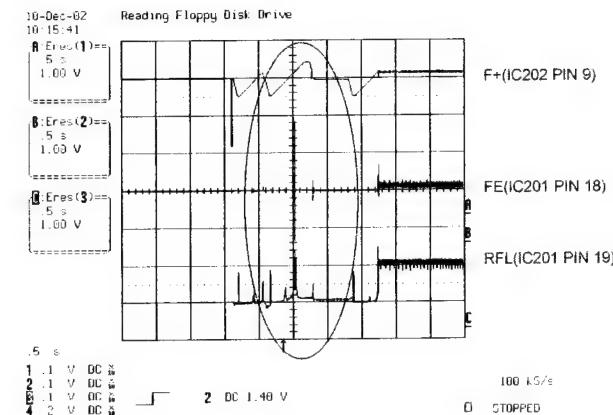


FIG 7-3 (CD)

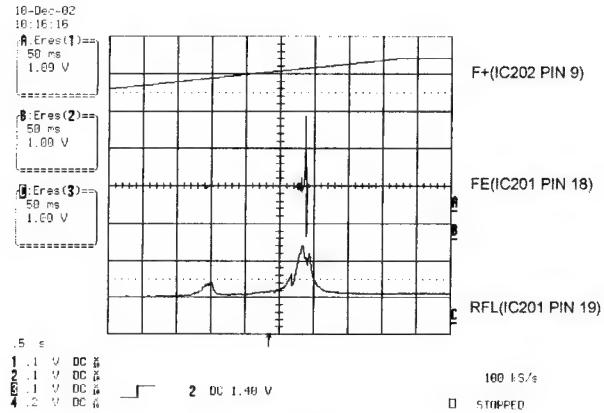


FIG 7-4 (CD)

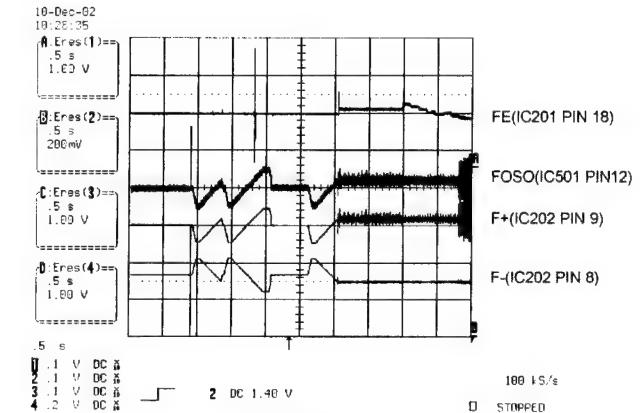


FIG 8-2 (CD)

8. FOCUS ON WAVEFORM

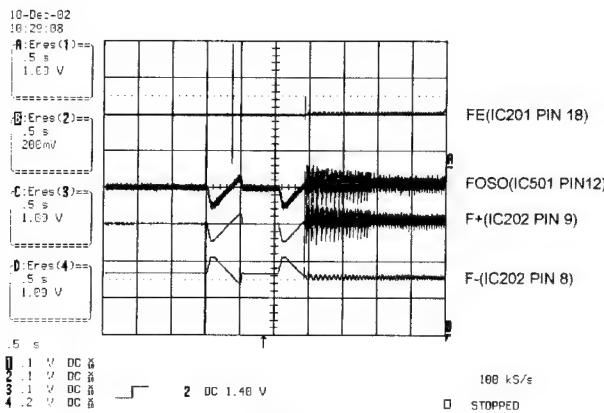


FIG 8-1 (DVD)

9. SPINDLE CONTROL WAVEFORM (NO DISC CONDITION)

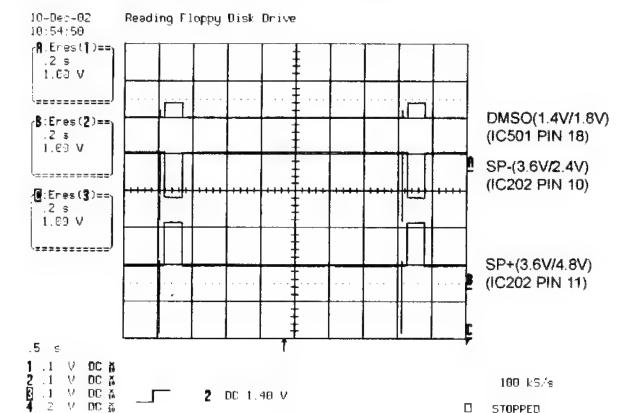


FIG 8-1

10. TRACKING CONTROL RELATED SIGNAL (System checking)

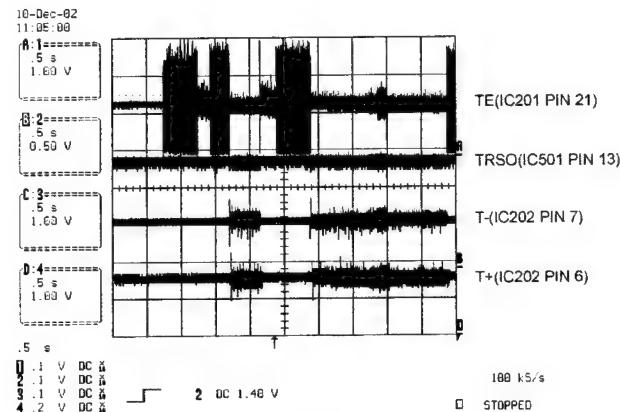


FIG 10-1(DVD)

11. RF WAVEFORM

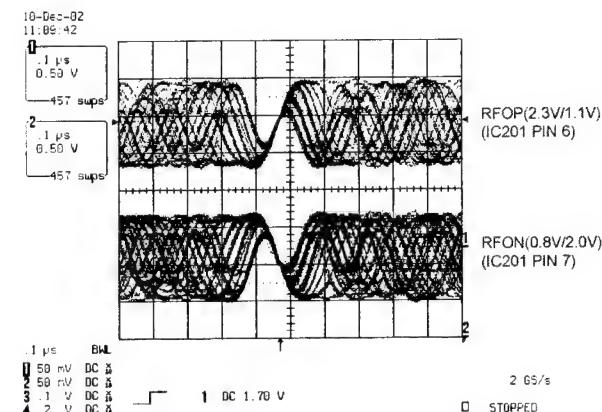


FIG 11-1

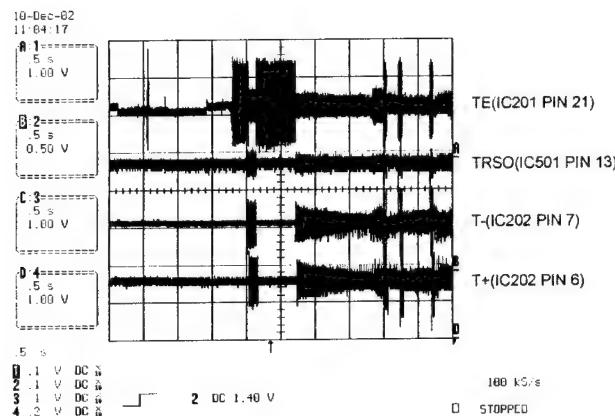


FIG 10-2(CD)

12. MT1379 AUDIO OPTICAL AND COAXIAL OUTPUT (ASPDIF)

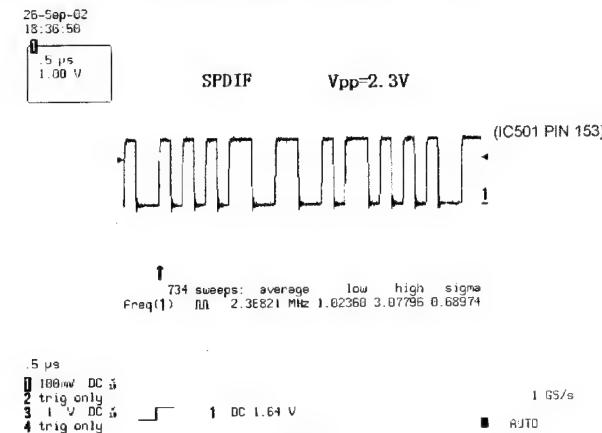


FIG 12-1

13. MT1379 VIDEO OUTPUT WAVEFORM

1) Full colorbar signal(CVBS)

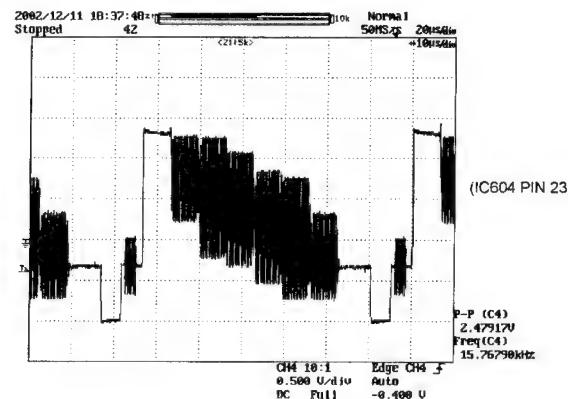


FIG 13-1

3) C

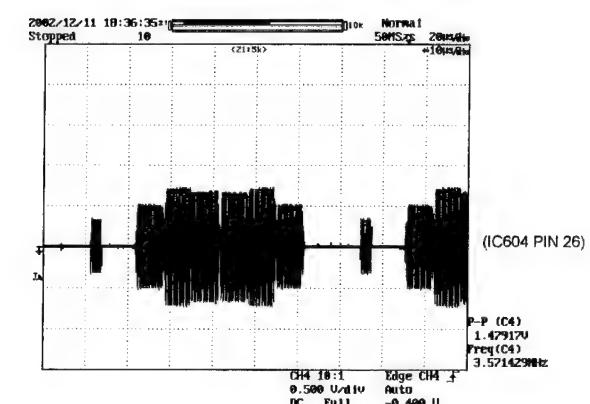


FIG 13-3

2) Y

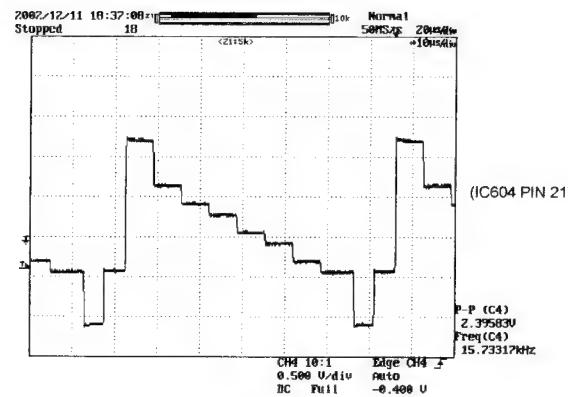


FIG 13-2

14. AUDIO OUTPUT FROM AUDIO DAC

1) Audio L/R

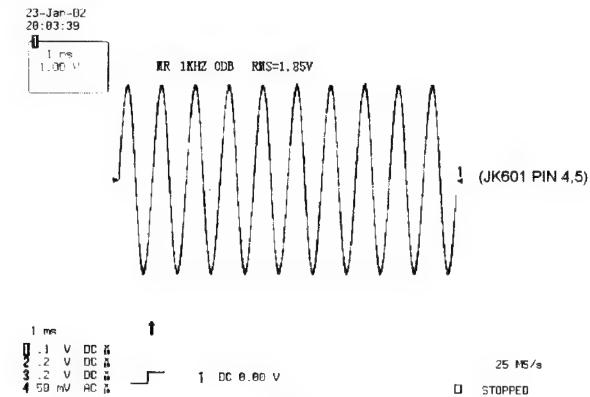
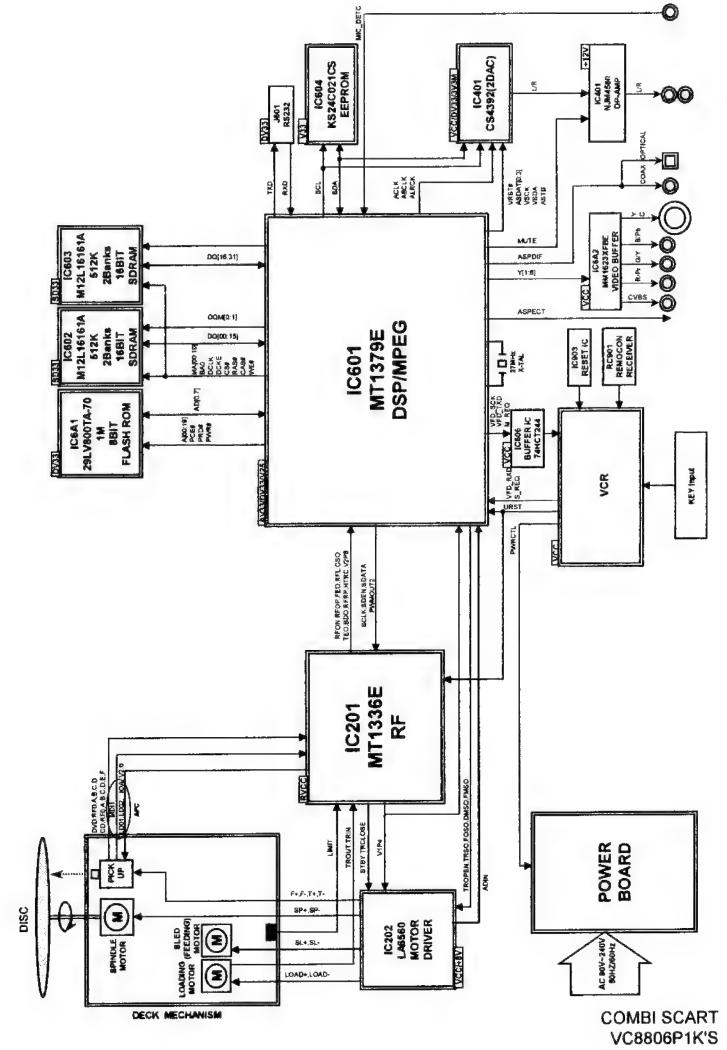


FIG 14-1

BLOCK DIAGRAMS

1. Overall Block Diagram



2) Audio related Signal

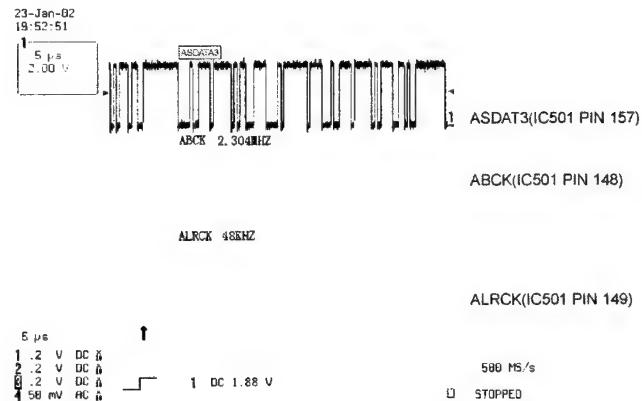
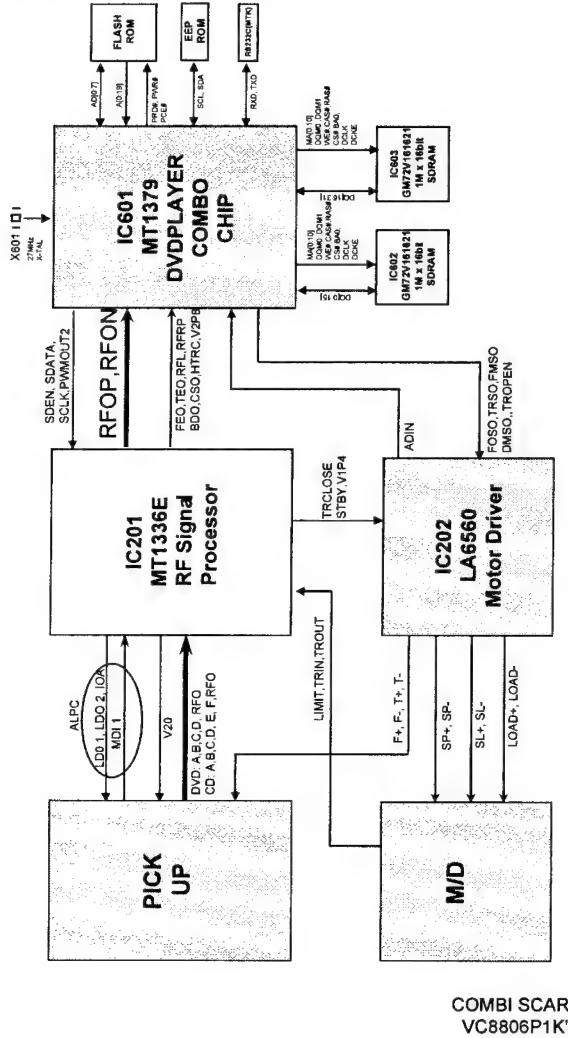
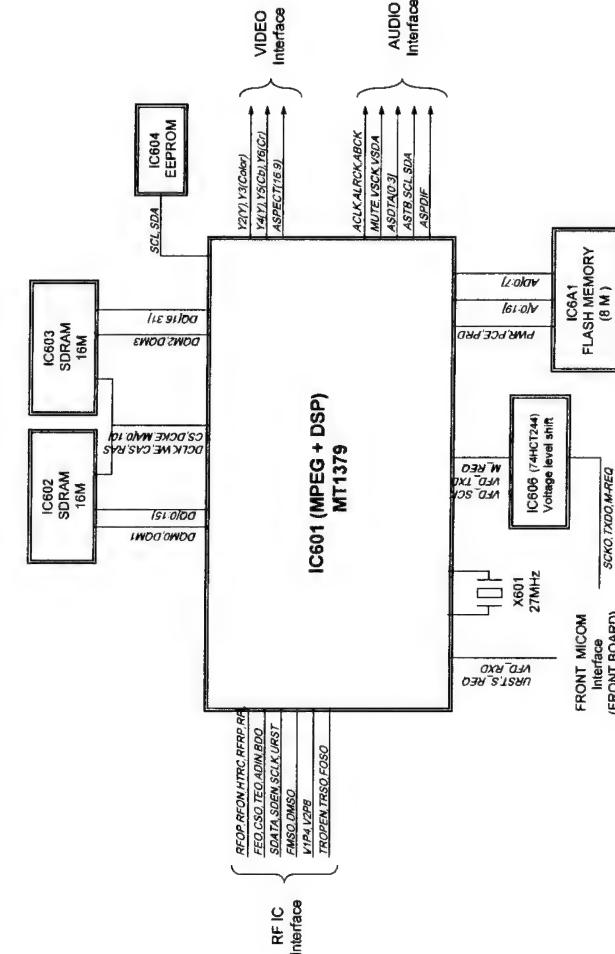


FIG 14-2

2. SERVO Block Diagram

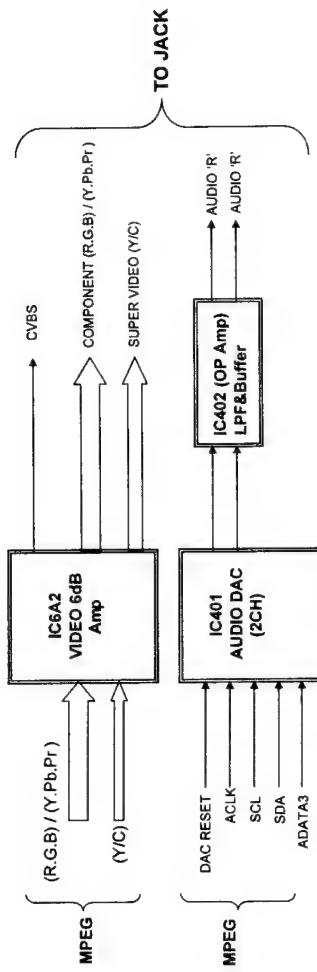


3. MPEG & MEMORY Block Diagram



MEMO

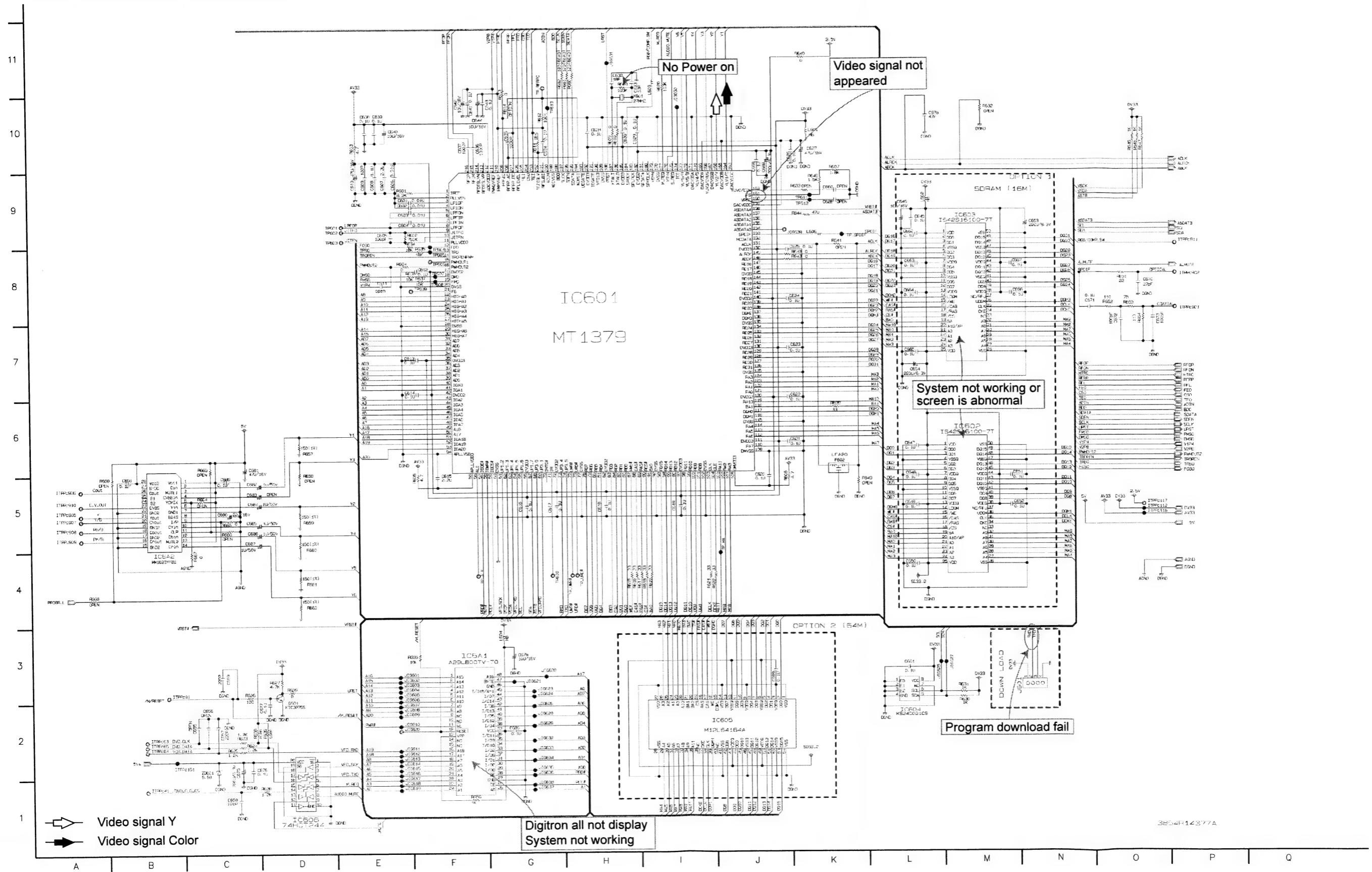
4. VIDEO & AUDIO Block Diagram



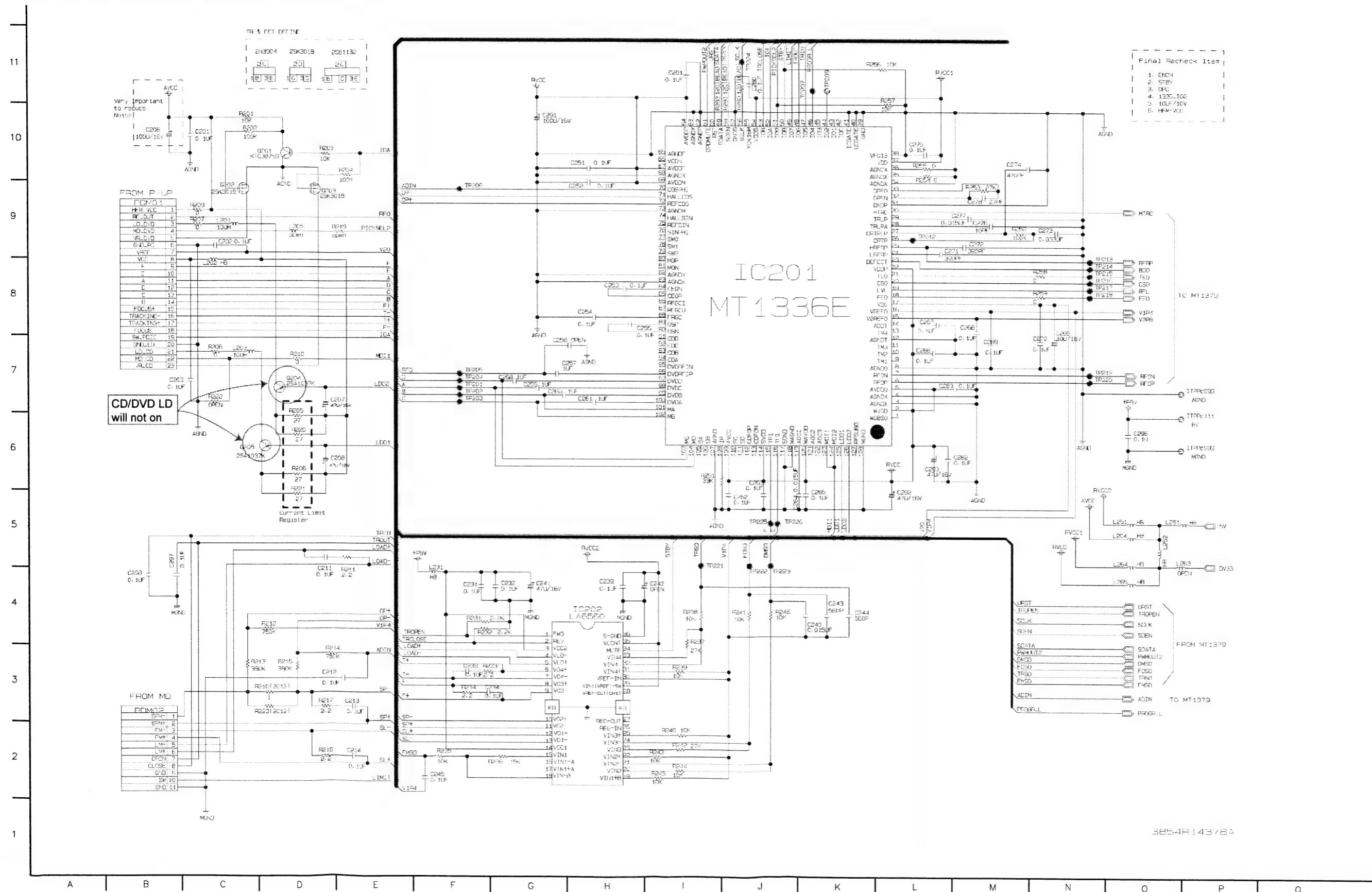
COMBI SCART
VC8806P1K'S

CIRCUIT DIAGRAMS

1. SYSTEM CIRCUIT DIAGRAM



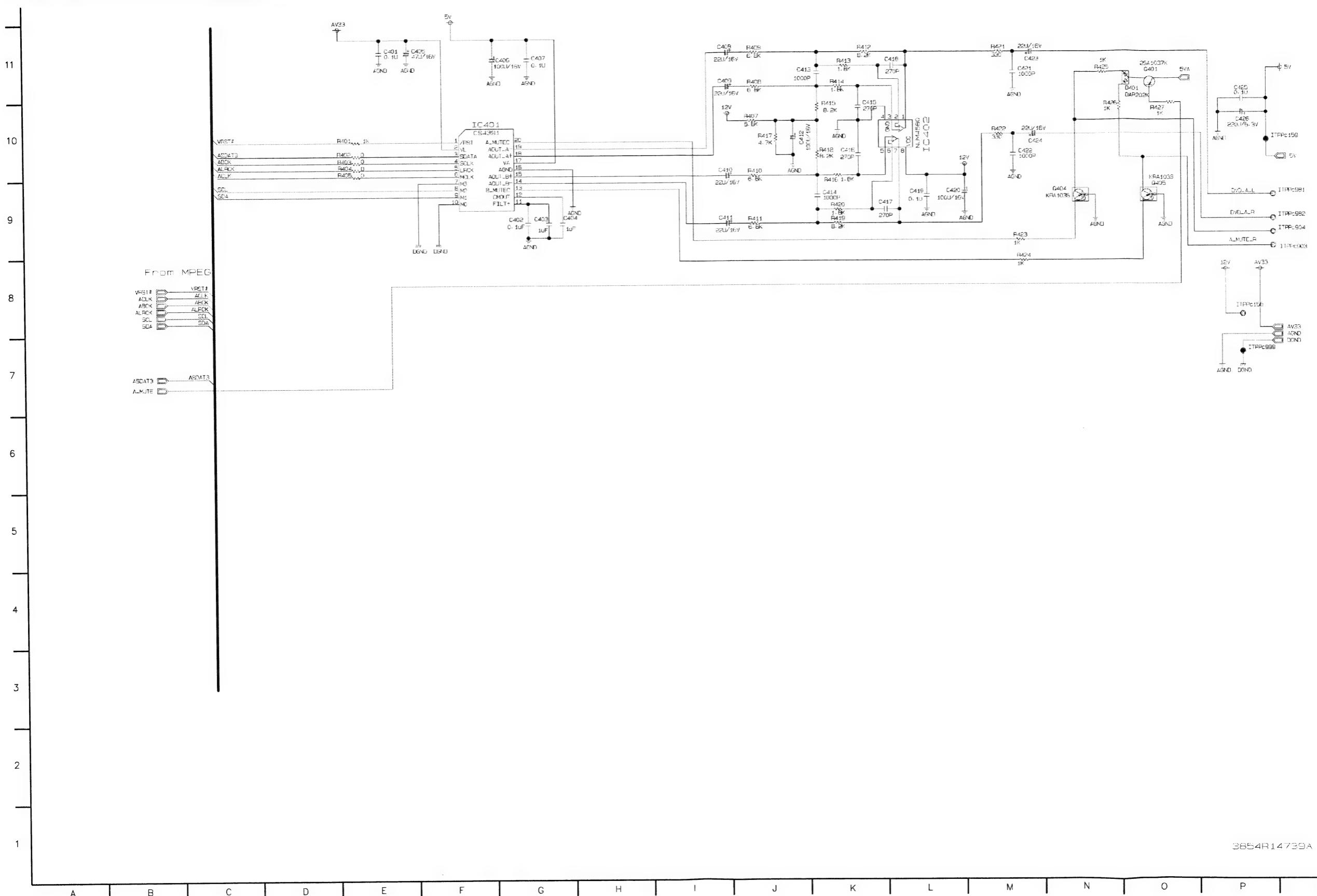
2. RF & DSP SERVO CIRCUIT DIAGRAM



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3. AV/JACK CIRCUIT DIAGRAM



• CIRCUIT VOLTAGE CHART

PIN	IC201(MT1336E)	IC202(MOTOR)	IC501(MT1376)	IC502(SDRAM)	IC505(EEPROM)	IC510(BUFFER)	IC5A1(FLASH)	IC401(C64391)	IC402(AMP)	IC5C1(MH1622XFB)
PIN	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY
1	1.03	2.99	0	0	1.22	1.22	3.27	3.28	0	0
2	5.11	5.08	0	0	0	0	1.18	1.26	0	0
3	0	0	8.04	8.01	0.96	0.9	1.1	1.52	0	0
4	0	0	0.12	0.06	2	2.06	0	0	0	0
5	5.11	5.07	0	0.06	0	1.51	0.66	1.07	3.28	3.29
6	0	1.95	3.64	3.69	1.48	1.47	0.85	1.12	3.28	3.29
7	0	0	3.62	3.61	0	1.56	3.27	3.28	0	0
8	0	0	3.64	3.53	3.2	1.52	0.51	0.97	3.28	3.29
9	5.11	0	3.6	3.76	0.12	0.06	3.06	0	0	0
10	5.11	5.08	3.62	2.43	0.12	0.06	0	0	0	0
11	5.11	5.08	3.63	4.85	3.25	3.25	0.06	0.98	0.15	0.09
12	0	0	3.62	3.72	1.41	1.49	3.18	0.87	0	0
13	5.11	0	3.64	3.57	1.41	1.41	3.27	3.28	0.15	0.08
14	5.11	5.08	8.04	8.01	0	0	2.94	2.56	5.19	5.19
15	2.84	2.81	1.45	1.48	1.42	1.42	0.47	0.42	0.14	0.09
16	1.45	1.43	0.27	1.39	3.3	0	2.93	3.01	5.25	5.24
17	2.08	2.07	0.29	1.32	2.53	2.53	3.21	3.22	0.15	0.08
18	1.37	1.42	1.45	1.43	1.42	1.39	0.15	1.32	5.23	5.23
19	0.69	2.3	1.45	1.43	1.42	1.39	0.15	1.32	0	0
20	2.4	0	1.45	0.82	0	0	0	0.05	5.25	5.25
21	2.35	0	1.45	1.43	2.61	2.58	3.09	1.32	1.98	2.64
22	5.11	5.08	1.45	1.43	0.75	1.46	3.09	1.32	2.28	2.18
23	0	0	1.47	1.37	2.83	1	3.09	1.32	2.13	1.96
24	2.59	3.2	1.45	1.43	1.9	0.89	3.09	1.33	1.67	2.01
25	0.19	1.88	1.45	1.43	1.72	0.39	3.27	3.29	1.99	1.72
26	1.56	0	0.95	0.91	0.68	0.31	0	0	1.93	2.19
27	2.56	3.13	0	0	2.84	3.16	0.15	1.36	2.05	1.94
28	2	2.01	1.45	1.43	0	0	1.84	2.36	0	0
29	2	2.06	5.15	5.11	2.85	0.66	1	2.32	0	0
30	2.96	1.52	1.45	1.43	1.83	0.49	0.54	1.75	0	0
31	0	0	1.45	1.43	0.91	1.36	0.06	0.06	1.49	2.03
32	0.06	2.07	1.45	1.43	1.43	1.2	0.05	0.06	0.16	1.07
33	0.07	2.07	1.46	1.45	1.51	1.57	0	0	1.96	1.25
34	0	0	5.08	5.06	1.51	1.43	0.73	1.26	0.16	1.1
35	0	0	5.15	5.11	3.3	3.29	1.48	1.55	0.99	2.2
36	0	0	0	0	0.81	1.26	2.91	2.53	1.17	1.07
37	5.13	0	1.45	1.02	0.07	0	0	0	0.79	1.82
38	0	0	1.82	1.6	3.27	3.28	0.15	1.07	0	0
39	0	0	1.2	1.5	1.06	1.05	3.29	3.3	0	0
40	0	0	2	2.06	0.47	0.98	1.93	3.09	0	0
41	0	0	2.17	1.95	0	0	0.16	1.07	0	0
42	5.12	5.09	2.53	2.52	0	0.6	1.5	2.2	0	0
43	5.12	5.09	1.96	1.9	1.12	1.24	0.16	1.07	0	0
44	5.12	5.09	1.79	1.9	3.27	3.28	1.21	2.64	0	0
45	5.12	5.09	0.8	1.72	1.21	0.99	0.16	1.08	0	0
46	5.12	5.09	0.8	1.96	1.31	1.34	1.64	1.48	0	0
47	0	0	0.8	1.84	0	0	2.05	2.06	0	0
48	5.12	5.09	3.3	2.63	1.43	1.44	0	0	0	0
49	5.12	0	0	0.13	0.88	1.01	0	0	0	0
50	5.08	5.06	0	0.07	0	0	0.07	0.13	0	0
51	5.09	5.07	0	0	0	0	0	0	0	0
52	5.1	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0
54	5.13	0	0	0	0	0	0	0	0	0
55	0.09	0.2	3.25	3.27	0	0	0	0	0	0
56	1.61	0	1.21	1.18	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0
58	0	0	3.29	3.29	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
61	3.28	0	2.59	2.57	0	0	0	0	0	0
62	0	0	2.58	2.58	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0
64	0	0	2.59	2.56	0	0	0	0	0	0
65	0	0	3.29	3.29	0	0	0	0	0	0
66	0.26	0	3.3	3.29	0	0	0	0	0	0
67	5.12	5.08	3.29	3.29	0	0	0	0	0	0
68	0	0	2.57	2.56	0	0	0	0	0	0
69	5.12	0	5.19	5.18	0	0	0	0	0	0
70	3.21	2.03	2.59	2.57	0	0	0	0	0	0
71	3.46	2.2	0.12	0.08	0	0	0	0	0	0
72	2.81	0	2.53	2.52	0	0	0	0	0	0
73	0	0	2.59	2.57	0	0	0	0	0	0
74	0.21	0.09	3.29	3.29	0	0	0	0	0	0
75	0.22	0	2.61	2.61	0	0	0	0	0	0
76	0	0.1	3.27	3.24	0	0	0	0	0	0
77	0.21	0.09	0	0	0	0	0	0	0	0
78	0.23	0.09	0.94	1.04	0	0	0	0	0	0
79	0.21	0.08	0.78	1.06	0	0	0	0	0	0
80	0.23	0.08	0.89	1.15	0	0	0	0	0	0

| PIN | IC201(MT1336E) | IC202(MOTOR) | IC501(MT1376) |
<th
| --- | --- | --- | --- |

SECTION 4 MECHANISM (D-37)

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POSITION DRAWING OF DECK MECHANISM PARTS

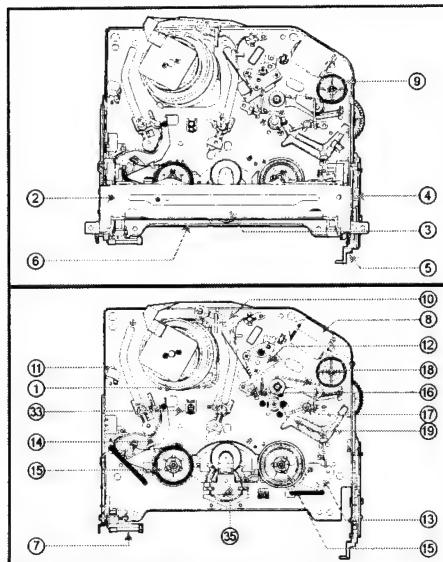
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POSITION DRAWING OF DECK MECHANISM PARTS

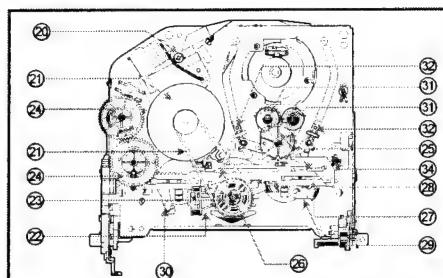
• Top View



Order of Dis-assembly Parts firstly Disassembled	Part	Fixing Type	Ref. Drawings	Position
1	Drum Assembly	3 screws	A-1	T
2	Plate Top	2 hooks	A-2	T
2	Holder Assembly CST	6 chassis	A-2	T
2,3	Gear Assembly Rack F/L	1 hook	A-2	T
2,3,4	Opener Door	Chassis Hole	A-2	T
2,3,4,5	Arm Assembly F/L	Chassis Hole	A-2	T
7	Lever Assembly S/W	Chassis Hole, 1 hook	A-2	T
8	Motor Assembly L/D	1 screw	A-3	T
9	Gear Wheel	2 hooks	A-3	T
10	Arm Assembly Cleaner	Chassis Embossing	A-3	T
11	Head F/E	Chassis Embossing	A-3	T
12	Base Assembly A/C Head	1 screw	A-3	T
13	Brake Assembly T	1 hook	A-4	T
23	Arm Assembly Tension	1 hook	A-4	T
23,13,14	Reel S / Reel T	Shaft	A-4	T
16	Base Assembly P4	Chassis Embossing	A-5	T
17	Opener Lid	Chassis Embossing	A-5	T
17	Arm Assembly Pinch	Shaft	A-5	T
17	Arm T/up	1 hook	A-5	T
20	Supporter, capstan	Chassis Hole	A-6	B
17,18	Bell Capstan/Motor Capstan	3 screws	A-6	B
22	Lever F/R	Locking Tab	A-6	B
21,22	Clutch Assembly D37	Washer	A-6	B
24	Gear Drive/Gear Cam	Washer/Hook	A-7	B
25	Gear Sector	Hook	A-7	B
21	Brake Assembly Capstan	Chassis Hole	A-7	B
21,22,23	Plate Slider	Chassis Guide	A-7	B
24,25,26	Lever Tension	1 Hook	A-7	B
24,25,26,27	Lever Spring	1 Hook	A-7	B
21,22,23	Lever Brake	1 Hook	A-7	B
24,25,26,27	Gear Assembly P2/ Gear Assembly P3	Bass	A-8	B
2,3,14,	Base Assembly P2	6 Chasses	A-8	B
25,31	Base Loading	3 Hooks	A-8	B
23,14	Base Tension	Chassis Embossing	A-9	T
35	Arm Assembly Idler Jog	Locking Tab	A-9	T

T:Top, B:Bottom

• Bottom View



NOTE : Assembly order is a reverse of
disassembly order.

- (1) For assembly, check the assembly mode is accurate.
(2) Parts firstly disassembled indicate parts firstly disassembled in disassembly of related parts.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

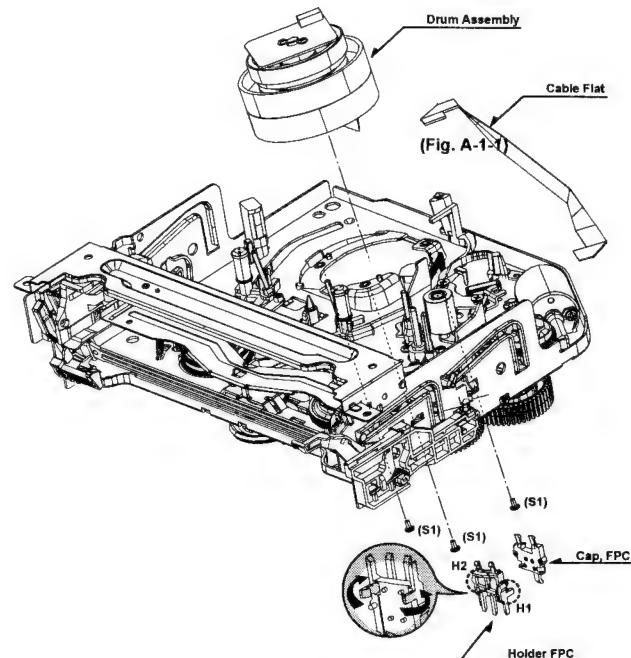
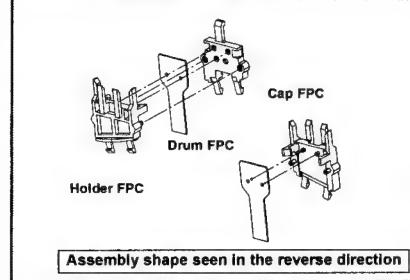


Fig. A-1

1. Disassembly of Drum Assembly (Figure A-1)

- 1) Separate cable flat from the Drum FPC and the Capstan Motor.
- 2) Release 3 screws (S1) on the bottom side of the chassis, and separate the drum assembly.
- 3) Release the hooks (H1, H2) and separate both the holder FPC and the Cap FPC (disassemble if necessary).

Cautions in assembly of FPC



DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

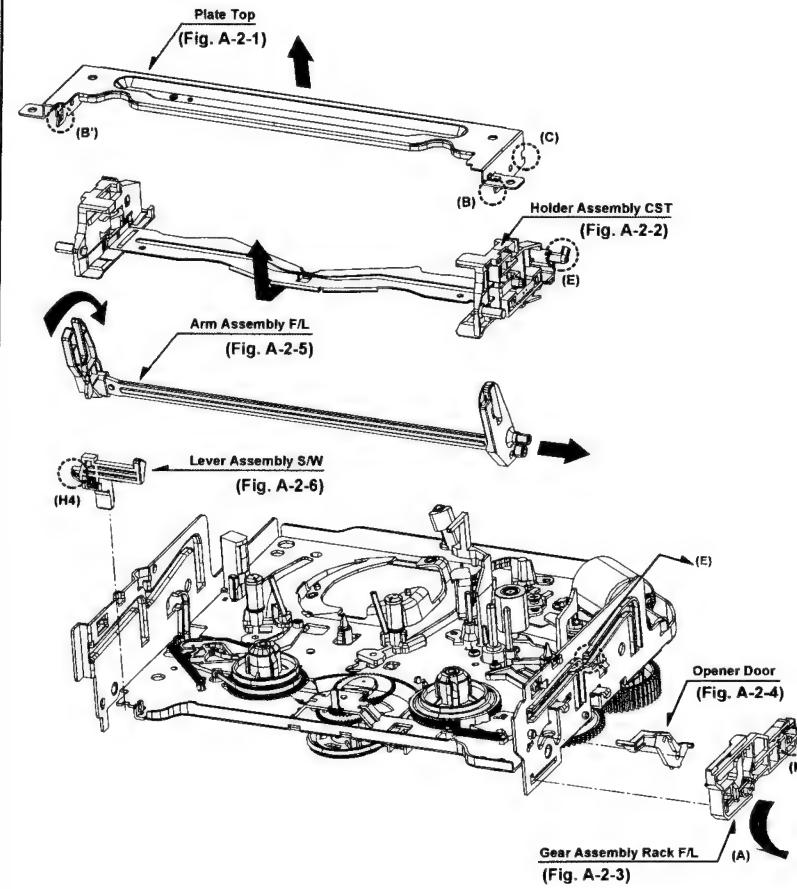


Fig. A-2

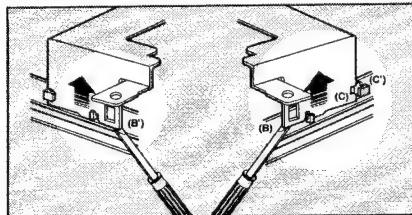
DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

2. Disassembly of Plate Top (Fig. A-2-1)

- 1) Separate the right part while leaning back the (B) part of the plate top toward the arrow direction.
- 2) Separate the left part while leaning back the (B') part of the plate top toward the arrow direction.
(Tool used: Tool such as (-) driver, auger, etc with pointed or flat end)

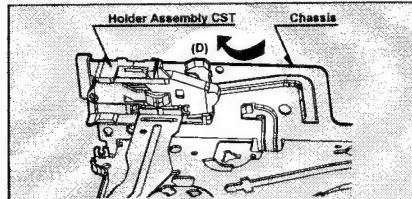
CAUTIONS

Assemble while pressing the (C), (C') part after corresponding them as in drawing.



3. Holder Assembly CST (Fig. A-2-2)

- 1) Firstly separate the left part from the groove on the (D) part of chassis while moving the holder assembly CST toward the arrow direction.



- 2) Separate the right part from each groove of chassis

CAUTIONS

Assemble by inserting the left part after firstly inserting the (E) part of the holder assembly CST into the groove on the (E') part of chassis.

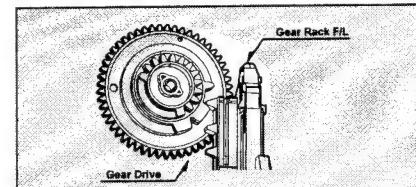
4. Disassembly of Gear Assembly

Rack F/L (Fig. A-2-3)

- 1) Separate the hook (H3) while leaning ahead the hook (3) after moving the gear assembly rack F/L toward the arrow (A) direction.
- 2) Separate the gear assembly rack F/L toward the arrow (B) direction.

CAUTIONS

For the assembly, correspond the gear part of gear assembly rack F/L to the gear drive.



5. Opener Door (Fig. A-2-4)

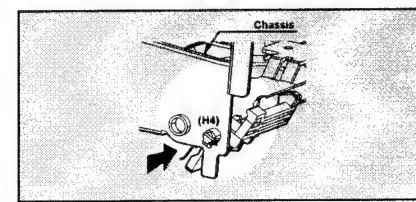
- 1) Separate the opener door ahead from the guide hole of chassis while turning it clockwise.

6. Arm Assembly F/L (Fig. A-2-5)

- 1) Firstly separate the left part of the arm assembly F/L from the groove of chassis while pushing the arm assembly F/L toward the arrow direction.
- 2) Separate the right part from the groove of chassis.)

7. Lever Assembly S/W (Fig. A-2-6)

- 1) Separate the lever assembly S/W while pushing it toward the arrow direction after removing the hook (4) on the left side of chassis.



DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

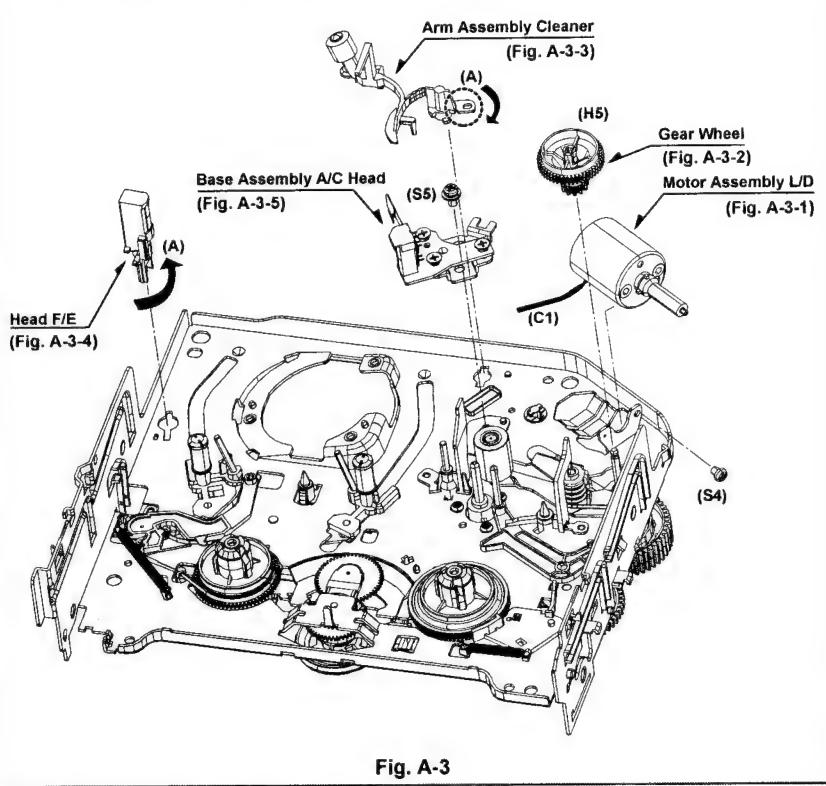


Fig. A-3

8. Motor Assembly L/D (Fig. A-3-1)

- 1) Take the connector (C1) connected to the Capstan motor PCB out.
- 2) Remove a screw (S4) of the chassis (S4) and step backward, and disassemble it while holding it up.

9. Gear Wheel (Fig. A-3-2)

- 1) Release the hook (H5) of the gear wheel and disassemble it upward.

10. Arm Assembly Cleaner (Fig. A-3-3)

- 1) Separate the (A) part of Fig. A-3-1 from the embossing of chassis, and hold it up while turning it anti-clockwise.

11. Head F/E (Fig. A-3-4)

- 1) Separate the (A) part of the head F/E from the embossing of chassis, and hold it up while turning it anti-clockwise.

12. Base Assembly A/C Head (Fig. A-3-5)

- 1) Release a screw (S5) and disassemble while holding it up.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

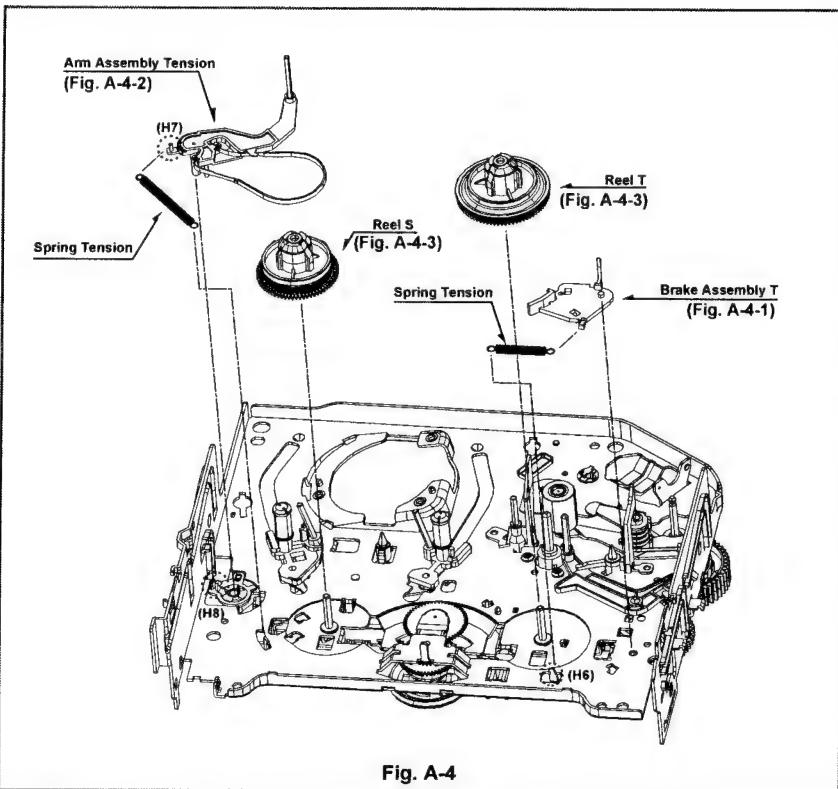


Fig. A-4

13. Brake Assembly T (Fig. A-4-1)

- 1) Release the spring tension from the lever spring hook (H6).
- 2) Disassemble the brake assembly T while holding it upward.

14. Arm Assembly Tension (Fig. A-4-2)

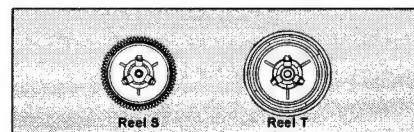
- 1) Release the spring tension the hook (H7) from the arm assembly tension.
- 2) After releasing the hook (H8) of the base tension, separate it while holding it up.

CAUTIONS

Spring used for both brake assembly T and arm assembly tension is used (2EA used).

15. Reel S/Reel T (Fig. A-4-3)

- 1) Disassemble the reel S/ reel T while holding it up (comparison between Reel S and Reel T)



DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

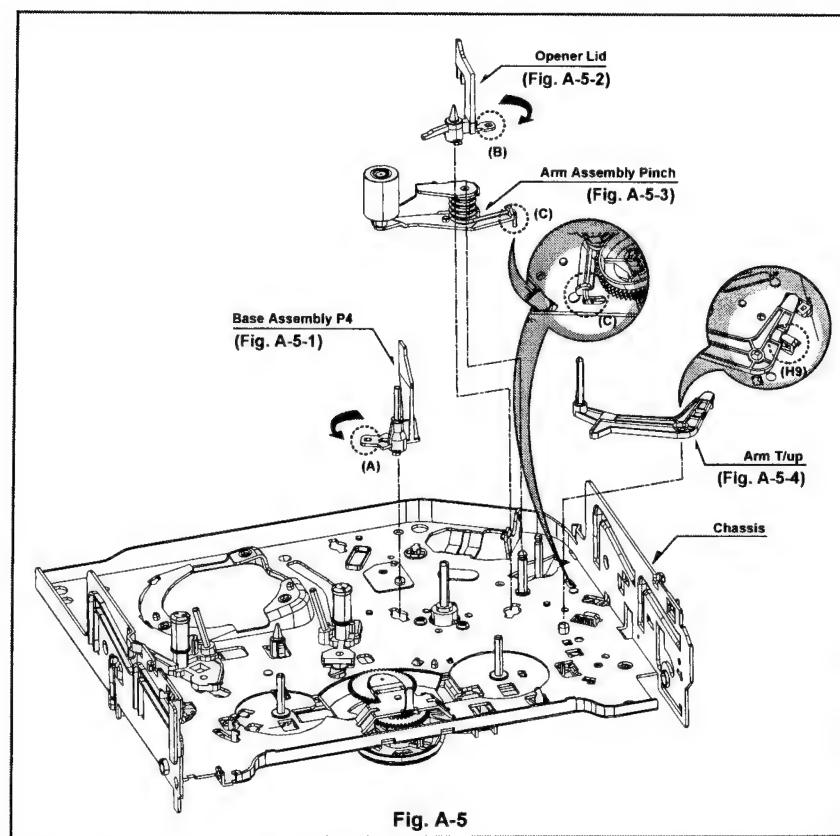


Fig. A-5

16. Base Assembly P4 (Fig. A-5-1)

- 1) Release the (A) part of the base assembly P4 from the embossing of chassis.
- 2) Hold the base assembly P4 up while turning it anti-clockwise.

17. Opener Lid (Fig. A-5-2)

- 1) Release the (B) part of the opener lid from the embossing of chassis.
- 2) Disassemble the opener lid upward while turning it anti-clockwise.

18. Arm Assembly Pinch (Fig. A-5-3)

- 1) Hold the arm assembly pinch up.

19. Arm T/up (Fig. A-5-4)

- 1) Turn the arm T/up to release the anchor jaw (H9) part of chassis and then hold it upward.

CAUTIONS

For the assembly, check the (C) part of the arm assembly pinch is assembled as in drawing.

- REVERSE THE MECHANISM.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

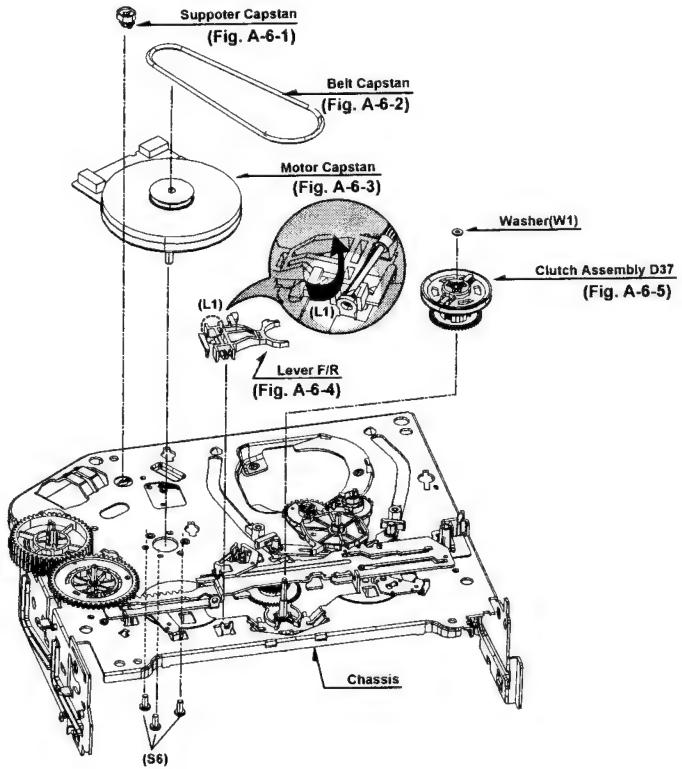


Fig. A-6

20. Supporter, Capstan (Fig. A-6-1)

1) Turn the supporter and Capstan by 90 deg. clockwise with a driver for disassembly.

21. Belt Capstan (Fig. A-6-2) / Motor Capstan (Fig. A-6-3)

1) Separate the belt Capstan.
2) Undo 3 screws (S6) on the bottom side of chassis and disassemble it upward.

22. Lever F/R (Fig. A-6-4)

1) Release the locking tab (L1) and then disassemble it upward.

23. Clutch Assembly D37 (Fig. A-6-5)

1) Remove the washer (W1) and then disassemble it upward.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

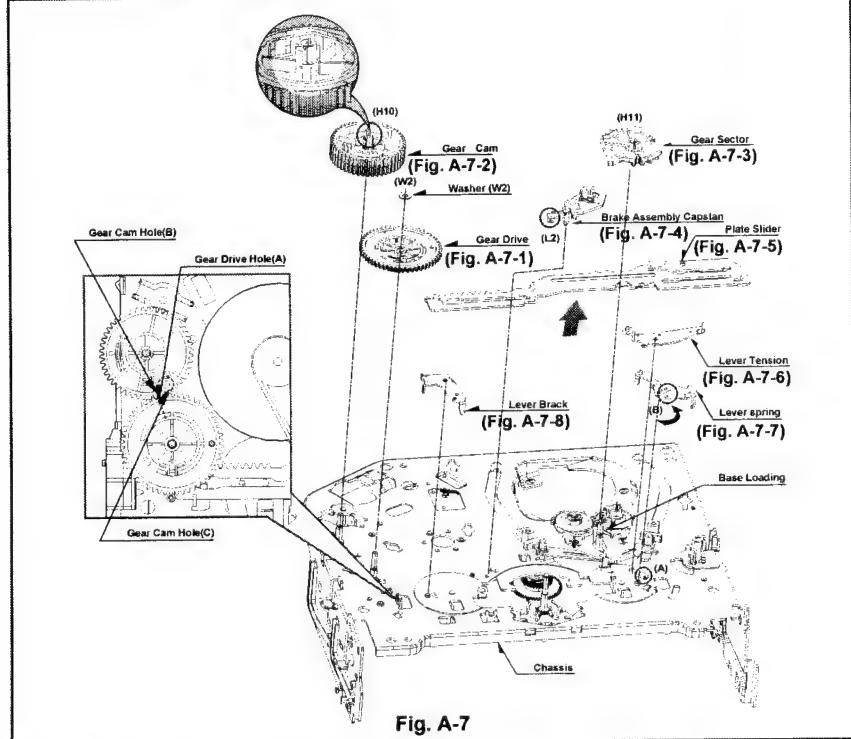


Fig. A-7

24. Gear Drive (Fig. A-7-1)/ Gear Cam (Fig. A-7-2)

1) Remove the washer (W2) and then disassemble the gear drive.
2) Release the hook (H10) of the gear cam and then disassemble it upward.

CAUTIONS

For the assembly, adjust both the gear driver hole (A) and the gear cam hole (B) straightly and then correspond the gear cam hole (C) to the chassis hole.

25. Gear Sector (Fig. A-7-3)

1) Release the hook (H11) of the gear sector and then hold the gear sector upward.

26. Brake Assembly Capstan (Fig. A-7-4)

1) Release the locking tab (L2) on the bottom side of the plate slider and then disassemble it upward.

27. Plate Slider (Fig. A-7-5)

1) Disassemble the plate slider while holding it up.

28. Lever Tension (Fig. A-7-6)

1) Release the lever tension from the guide (A) of chassis while turning it anti-clockwise.
2) Disassemble the lever tension while holding it up.

29. Lever Spring (Fig. A-7-7)

1) Release the (B) part of the lever spring from the guide (A) of chassis while turning it anti-clockwise.
2) Disassemble the lever tension while holding it up.

30. Lever Brake (Fig. A-7-8)

1) Disassemble the lever brake while holding it up.

DECK MECHANISM DISASSEMBLY

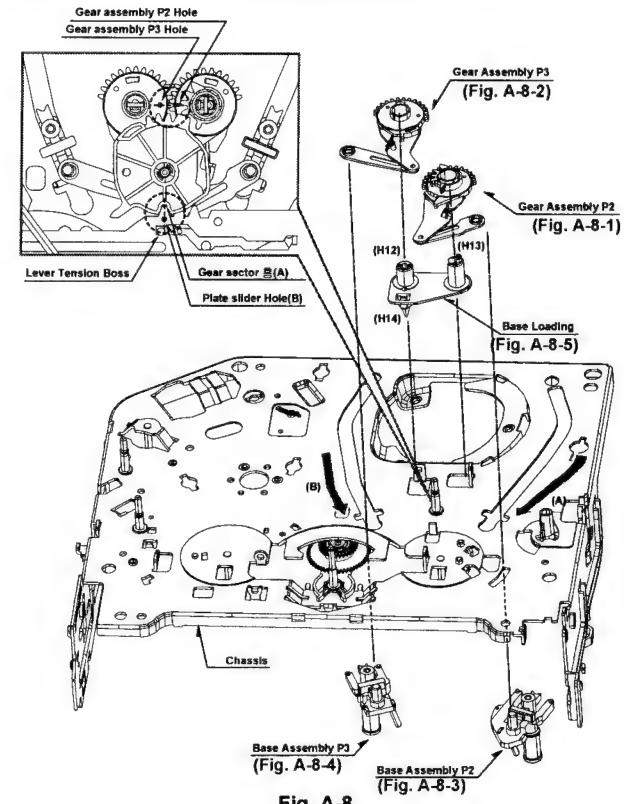


Fig. A-8

31. Gear Assembly P2 (Fig. A-8-1)/ Gear Assembly P3 (Fig. A-8-4)

- 1) Hold the gear assembly P2 upward.
- 2) Hold the gear assembly P3 upward.

CAUTIONS

For the assembly, check the holes of both the gear assembly P2 and the P3 are adjusted straightly, and then correspond the gear section groove (A) to the plate slider hole (B).

32. Base Assembly P2 (Fig. A-8-3)/ Base Assembly P3 (Fig. A-8-4)

- 1) Disassemble the base assembly P2 downward while moving it toward the arrow (A) direction along with the guide hole of chassis.
- 2) Disassemble the base assembly P2 downward while moving it toward the arrow (B) direction along with the guide hole of chassis.

33. Base Loading (Fig. A-8-5)

- 1) Release 3 hooks (H12, 13, 14) of the base loading, and then disassemble them upward.
- Reverse the mechanism.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

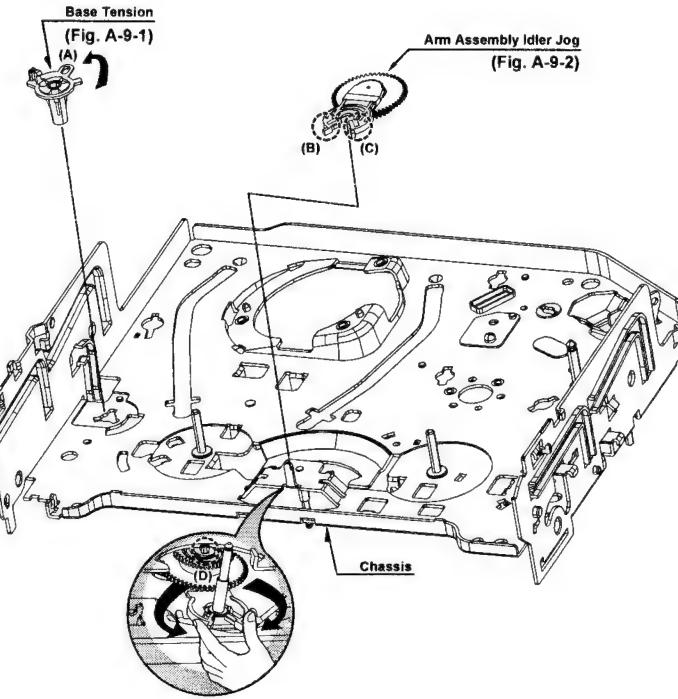


Fig. A-9

34. Base Tension (Fig. A-9-1)

- 1) Release the (A) part of the base tension from the embossing of chassis.
- 2) Hold the base tension upward while turning it anti-clockwise.

35. Arm assembly Idler Jog (Fig. A-9-2)

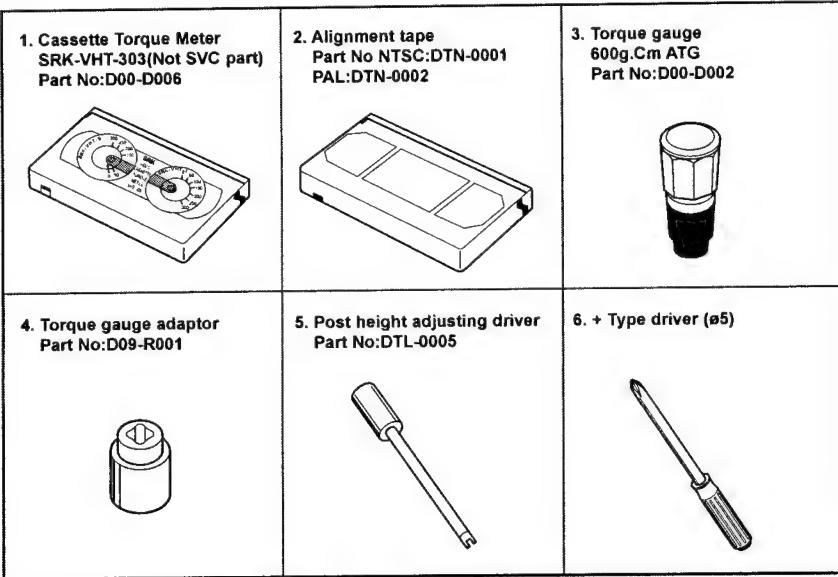
- 1) Push both (B), (C) parts in Fig. A-9-2 toward the arrow direction.
- 2) Disassemble the arm assembly idler upward.

CAUTIONS

Take care to ensure that the (D) part in the drawing is not hung to chassis in disassembly.

DECK MECHANISM ADJUSTMENT

• Fixtures and Tools for Service



4-12

DECK MECHANISM ADJUSTMENT

1. Mechanism Assembly Mode Check

Purpose of adjustment : To make tools normally operate by positioning tools accurately.

Fixtures and tools used	VCR (VCP) status	Checking Position
• Blank Tape (empty tape)	• Eject Mode (with cassette withdrawn)	• Mechanism and Mode Switch
	4) Undo the screw fixing the deck and the main frame, and separate the deck assembly. Check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-1).	
	2) Separate both top cover and plate top, and check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-2).	
	3) If it is done as in the paragraph 2): Turn the gear cam as in No.2) after dismantling the motor assembly L/D.	
	5) Check the mode S/W on the main P.C. board locates at a proper position as in (B) of the Fig. (C-1).	
	6) Connect the deck to the main P.C. board and perform all types of test.	

CHECK DIAGRAM

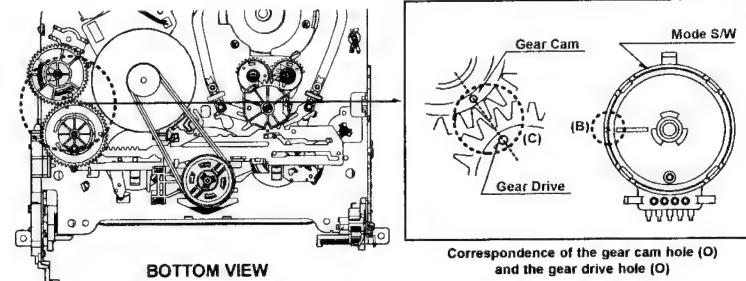


Fig. C-1

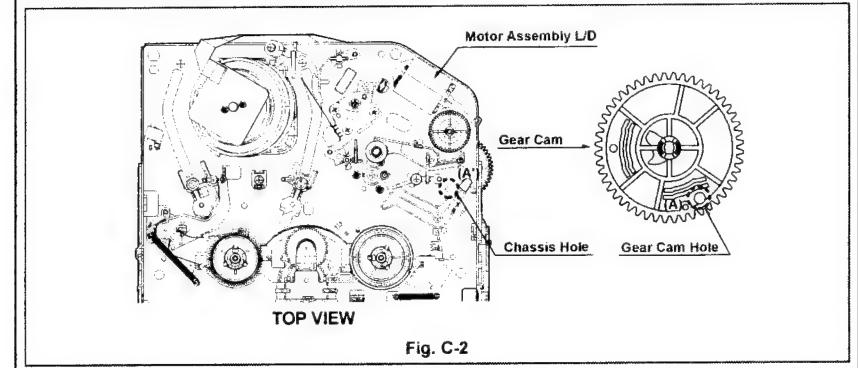


Fig. C-2

4-13

DECK MECHANISM ADJUSTMENT

2. Previous Preparation for Deck Adjustment

(Preparation to load the VCR (VCP) with cassette tape not inserted)

- 1) Take the power cord from the consent.
- 2) Separate the top cover and the plate assembly top.
- 3) Insert the power cord into again.
- 4) Turn the VCR (VCP) on and load the cassette while pushing the lever stopper of the holder assembly CST backward. In this case, clog both holes on the housing rail part of chassis to prevent detection of the end sensor.

3. Torque Measuring

Purpose of Measuring : To measure and check the reel torque on the take-up part and the supply part that performs basic operation of the VCR (VCP) for smoothly forwarding the tape.
Measure and check followings when the tape is not smoothly wound or the tape velocity is abnormally proceeded:

Fixtures and tools used	VCR (VCP) status	Measuring method
<ul style="list-style-type: none"> • Torque Gauge (600 g.cm ATG) • Torque Gauge Adaptor • Cassette Torque Meter SRK-VHT-303 	<ul style="list-style-type: none"> • Play (FF) or Review (REW) Mode 	<ul style="list-style-type: none"> • Try to operate the VCR (VCP) per mode with the tape not inserted (See '2. Prior Preparation for Deck Adjustment). • Measure after adhering and fixing the torque gauge adaptor to the torque gauge (Fig. C-3-1) • Read scale of the supply or take-up part of the cassette torque meter (Fig. C-3-2).
Item	Mode	Instruments
Fast forward Torque	Fast Forward	Torque Gauge
Rewind Torque	Rewind	Torque Gauge
Play Take-Up Torque	Play	VHT-303
Review Torque	Review	VHT-303

NOTE

Adhere the torque gauge adaptor to the torque gauge for measuring the value.

• Torque Gauge (600g.cm ATG)

• Cassette Torque Meter (SRK-VHT-303)

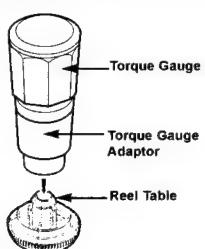


Fig. C-3-1

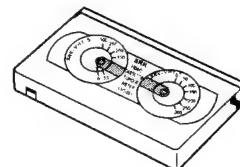


Fig. C-3-2

DECK MECHANISM ADJUSTMENT

4. Guide Roller Height Adjustment

Purpose of adjustment : To ensure that the bottom surface of the tape can travel along with the tape lead line of the lower drum by constantly and adjusting and maintaining the height of the tape.

4-1. Prior Adjustment

Fixtures and tools used	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> • Post Height Adjusting Driver 	<ul style="list-style-type: none"> • Play or Review Mode 	<ul style="list-style-type: none"> • The guide roller height adjusting screw on the supply guide roller and the take-up guide roller
Adjustment Procedure		

1) Travel the tape and check the bottom surface of the tape travels along with the guide line of the lower drum.
 2) If the tape travels toward the lower part of guide line on the lower drum, turn the guide roller height adjusting screw to the left
 3) If it travels to the upper part, turn it to the right.
 4) Adjust the height of the guide roller to ensure that the tape is guided on the guide line of the lower drum at the inlet/outlet of the drum. (Fig. C-4-1)



Fig. C-4-1

4-2. Fine Adjustment

Fixtures and tools used	Measuring tools and connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> • Oscilloscope • Standard test tape • Post height adjusting driver 	<ul style="list-style-type: none"> • CH-1: PB RF Envelope • CH-2: NTSC : SW 30Hz PAL : SW 25Hz • Head switching output point • RF Envelope output point 	<ul style="list-style-type: none"> • Play the standard test tape. 	<ul style="list-style-type: none"> • Guide roller height adjusting screw
Waveform			
<p>Fig. C-4-2</p>			
Connection Diagram			

DECK MECHANISM ADJUSTMENT

5. Audio/Control (A/C) Head Adjustment

Purpose of adjustment : To ensure that audio and control signals can be recorded and played according to the contract tract by constantly maintaining distance between tape and head, and tape tension between the P3 post and the P4 post.

5-1. Prior Adjustment (performed only when no audio output appears in play of the standard test tape)

Fixtures and tools used	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Blank Tape (Empty Tape) Driver (+) Type Ø 5 	<ul style="list-style-type: none"> Play the blank tape (empty tape). 	<ul style="list-style-type: none"> Tilt adj using screw (C) Height adj using screw (B) Azimuth adj using screw (A)

Adjustment Procedure/Adjustment Diagrams

- 1) Basically use the A/C head assembly adjusted as in SPEC.
- 2) Check there is crumpling and folding of the tape around the A/C head. If it is, Turn and adjust the tilt adj using screw to ensure that the tape corresponds to the bottom guide of the P4, and recheck the tape path after proceeding play for 4-5 seconds.

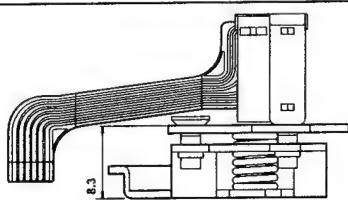


Fig. C-5-1

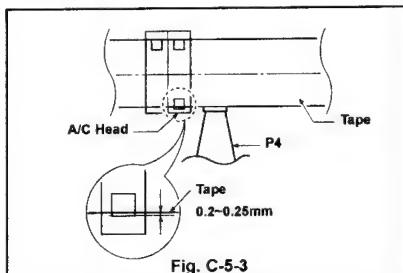


Fig. C-5-3

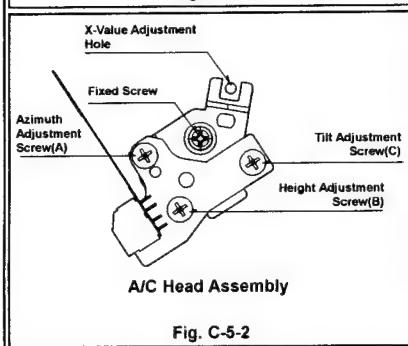


Fig. C-5-2

DECK MECHANISM ADJUSTMENT

5-2. Tape Path Check between Pinch Roller and Take up Guide (Check in the Rev Mode)

- 1) Check the tape pass status between the pinch roller and the take-up guide.(Check there is crumpling of the tape pass and folding of the take-up guide.)
 - (1) When holding of the take-up guide bottom occurs
Turn the tilt adj using screw (C) clockwise and travel it stably to ensure there is no crumpling or folding of the tape.
 - (2) When holding of the take-up guide top occurs
Turn the tilt adj using screw (C) anti-clockwise and

travel it stably to ensure there is no crumpling or folding of the tape.

- 2) Check there is folding of the tape at the bottom or top of the take-up guide in cutting-off the REV mode

CAUTIONS

If the RF waveform is changed after adjusting the A/C head, perform fine adjustment to ensure the RF waveform is flattened.

5-3. Fine Adjustment (Azimuth Adjustment)

Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Oscilloscope Standard test tape (only for SP) Driver (+) Type Ø 4 	<ul style="list-style-type: none"> Audio Output Jack 	<ul style="list-style-type: none"> Play the standard test tape, 1KHz, 7KHz. 	<ul style="list-style-type: none"> Azimuth Adj using Screw (A) Height Adj using Screw (B)

Adjustment Procedure

- 1) Connect the probe of Oscilloscope to the audio output jack.
- 2) Ensure that Audio 1KHz, 7KHz output is flattened at the maximization point by adjusting the Azimuth adj using screw (A).

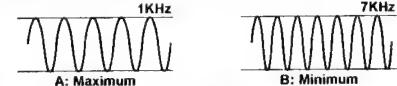


Fig. C-5-4

6. X-distance Adjustment

Purpose of adjustment : To maintain compatibility with other VCR (VCP).

Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Oscilloscope Standard test tape (only for SP) Driver (+) Type Ø 4 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: NTSC ; SW 30Hz PAL:SW 25Hz Head switching output point RF Envelope output point 	<ul style="list-style-type: none"> Play the standard test tape. 	

Adjustment Procedure

- 1) After releasing the auto tracking, lightly turn the fixing screw. Turn the (+) type driver ($\varnothing 3 \sim \varnothing 4$) on the X-distance adj using hole to the right or left. Adjust the RF envelope level to the maximum point and then fix the fixing screws.
- 2) For the 31mm head, adjust it with the SP tape recorded in the width of 31mm since the head travels on the tape track only for SP with the width of 58mm.

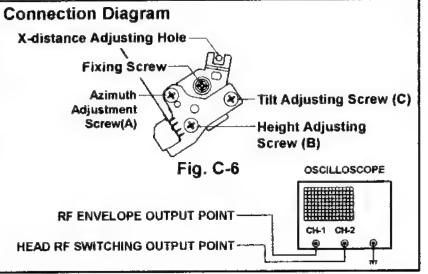


Fig. C-6

DECK MECHANISM ADJUSTMENT

7. Adjustment after Drum Assembly (Video Heads)

Purpose of adjustment : To adjust and stabilize the height change, X-distance change, etc depending on the guide roller after assembling the drum.			
Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Oscilloscope Standard test tape (only for SP) Post Height Adjusting Driver Driver (+) Type Ø 5 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: NTSC : SW 30Hz PAL:SW 25Hz Head switching output point RF Envelope output point 	<ul style="list-style-type: none"> Play the blank tape. Play the standard test tape. 	<ul style="list-style-type: none"> Fine adjustment of guide roller Switching Point Tracking Preset X-distance
Checking/Adjustment Procedure			Connection Diagram
<ol style="list-style-type: none"> Play the blank tape (empty tape) and check whether the guide roller crumbles or wrinkles the tape and adjust it if necessary. Check that the RF envelope output waveform is flat, and adjust the height of the guide roller while playing the standard test tape. Adjust the switching point. Check the RF envelope output is the maximum when the tracking control locates at the center. If not maximum, set up to ensure that RF envelope output becomes the maximum by turning the (+) type driver ($\varnothing 3 \sim \varnothing 4$) on the base A/C groove. 			<p>OSCILLOSCOPE</p> <p>RF ENVELOPE OUTPUT POINT</p> <p>HEAD RF SWITCHING OUTPUT POINT</p> <p>Waveform</p> <p>V1 V1 V2</p> <p>VIV MAX = 0.7</p> <p>VIV MAX = 0.8</p> <p>RF ENVELOPE OUTPUT</p>

8. Check of Traveling Device after Deck Assembly

8-1. Audio, RF Normalization Time (Locking Time) Check in Play after CUE or REV

Fixtures and tools used	Measuring standard	Connection position	VCR (VCP) status
<ul style="list-style-type: none"> Oscilloscope 6H 3KHz Color Bar Standard Test tape Stop Watch 	<ul style="list-style-type: none"> RF Locking Time: Within 5 seconds Audio Locking Time : Within 10 seconds 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: Audio output RF Envelope output point Audio output jack 	<ul style="list-style-type: none"> Play the 6H 3KHz Color Bar Standard Test tape.
Checking Procedure			
<ol style="list-style-type: none"> Check that locking time of the RF and Audio waveform is fallen within the measuring standard in conversion of the play mode from the CUE or the REV mode. Readjust the paragraph 5 and 6 if it deviates from the standard. 			

8-2. Check of Tape Curl and Jam Status

Fixtures and tools used	Fixtures and tools used	Fixtures and tools used
<ul style="list-style-type: none"> T-160 Tape T-120 Tape 	<ul style="list-style-type: none"> There must be no jam or curl at the first, middle and end position of tape. 	<ul style="list-style-type: none"> Travel the tape at the position of its first and end.
Checking Procedure		
<ol style="list-style-type: none"> Check there is no abnormality of every traveling post status. There must be no abnormal operation of the counter in occurrence of folding of the bottom tape. There must be no abnormality of audio signal in damage of the top tape. If there is abnormality, readjust the adjustment paragraph 4 and 5. 		

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

1. Checking Points prior to Repair

Following abnormal phenomena may be repaired by removal of foreign materials and oil supply. Check oiling is required at the checking set or cleaning status is complete. Determine that necessity of checking and repair the set exists after checking the using period of the set together with the user. In this case, followings must be checked:

Phenomena	Checking Points and Cause	Replace-ment
Color beat	Pollution of Full-Erase Head	○
S/N, Color Faded	Pollution of Video Head	○
Horizontal, Vertical Jite	Pollution of Video Head or Tape Transport System	○
Poor Sound, Low Sound	Pollution of Audio/Control Head	○
No tape wound or tape wound loosely. FF or REV impossible, or slow turning	Pollution of Pinch Roller or Belt Capstan Belt	○
Tape loosely wound in REV or Unloading	Deterioration of Clutch Assembly D37 Torque	○
	Pollution of Drum and Traveling Device	Fig. C-9-3

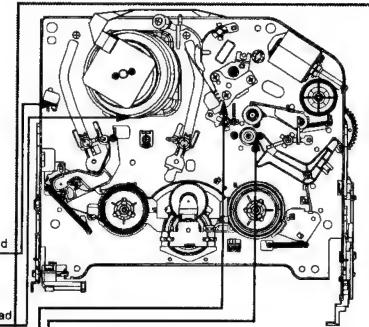


Fig. C-9-1 TOP VIEW

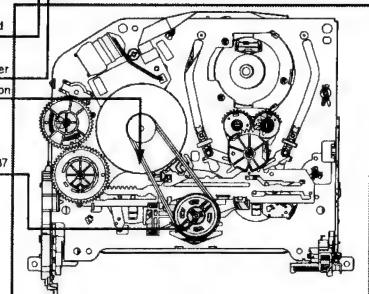


Fig. C-9-2 BOTTOM VIEW

CAUTIONS

If operation of the position with (O) mark is abnormal even after removing cause, replace it with substitute product since it shows damage or wearing.

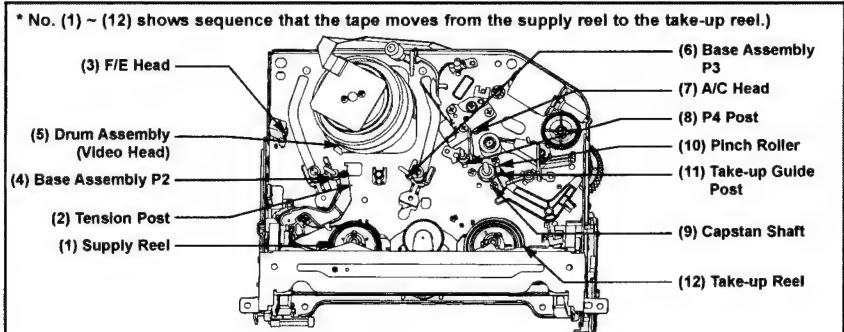


Fig. C-9-3 Tape Transport System

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

2. Essential Check and Repair

Recording density of the video is far higher than the audio. Therefore video parts are very precise so as to allow only error of 1/1000mm or so in order to maintain compatibility with other videos.

If one of these parts is polluted or old, same phenomena will appear as they are damaged.
To maintain clear screen, regular check, replacement of old and damaged parts and oil supply, etc are essential.

3. Regular Check and Repair

Check and repair schedule is not constant since they vary depending on method that the consumer uses video and environment where the video is installed at.

However, for the video used by common household, good screen will be maintained if regular check and repair per 1,000 hour is performed. The following chart shows relationship between using time and checking time:

Table 1

Time Requiring Checking	About 1 year	About 18 months	About 3 years
Average hours used per day			
One hour			
Two hours			
Three hours			

4. Tools for Check and Repair

- (1) Grease: Floil G-3114 (KANTO) or equivalent grease (Green)
- (2) Grease: Kanto G-754, PL-433 (Yellow)
- (3) Alcohol (Isopropyl Alcohol)
- (4) Cleaning Patch (cloth)

5. Maintenance Process

5-1) Removal of Foreign Material

- (1) Removal of foreign material from video head (Fig. C-9-4)
Firstly try to use a cleaning tape.
Use a cleaning patch if foreign materials are not removed with the cleaning tape due to severe dirty of the head. Soak the cleaning patch in alcohol and put it to the head tip. Smoothly turn the drum (turning cylinder) to the right or left (In this case, the cleaning patch must not be moved vertically). After completely drying the head, test the traveling status of the tape.
- If alcohol (isopropyl Alcohol) remains at the video head, the tape may be damaged when this solution touches with the head surface.

Never use a cloth bar (commercial sale).

- (2) Wipe the tape transport system and the drive system with the cleaning patch soaked in alcohol (Isopropyl Alcohol) when removing foreign materials from them.
- 1) The part touched with the traveling tape is called as tape transport system. The drive system consists of parts to travel the tape.
- 2) Care must be exercised so that unreasonable force to change the pattern will be applied to the tape transport system during removal of foreign materials.

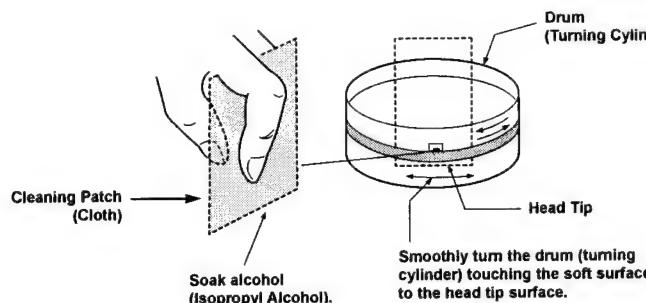


Fig. C-9-4

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

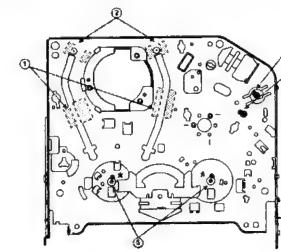
5-2) Grease Applications

(1) Grease Application Method

Apply grease by using a cloth swab or brush. Care must be exercised so that excess quantity should not be used. If the excessive quantity is applied, wipe it with the gauze soaked in alcohol (Isopropyl Alcohol).

NOTE: POSITION OF GREASE APPLICATION

- | | |
|--|---------------------------------|
| (1) Inner Side Surface and Top Surface of Loading Path | (4) Gear Wheel Shaft |
| (2) Stable Adhesion Part of Base P2, P3 Coll | (5) Reel S. T. Shaft |
| (3) Arm Pinch Shaft | (1) (2) (3) (4) KG-684G (Green) |
| (5) PL-433 (Yellow) | (5) PL-433 (Yellow) |

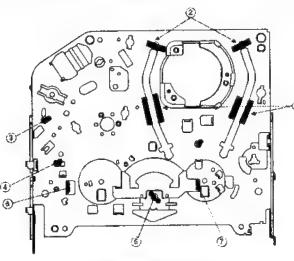


Chassis (TOP)

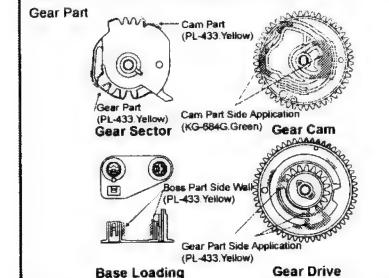
(2) Regular Grease Application

Apply grease to the designated application position every 500 hour.

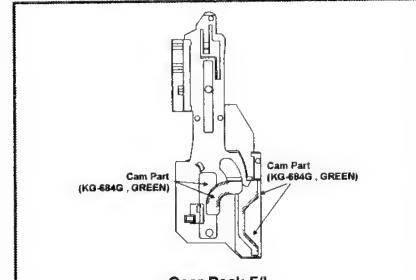
- | | |
|--|--|
| (1) Inner Side Surface and Top Surface of Loading Path | (6) Guide Part on the Plate Slider Side Wall (Left) |
| (2) Stable Adhesion Part of Base P2, P3 Coll | (7) Guide Part on the Plate Slider Side Wall (Right) |
| (3) Gear Cam Shaft | (1) (2) (3) (4) (5) (6) (7) KG-684G (Green) |
| (4) Gear Drive Shaft | |
| (5) Clutch Shaft Groove | |



Chassis (Bottom)



Gear Part



Gear Rack F/L

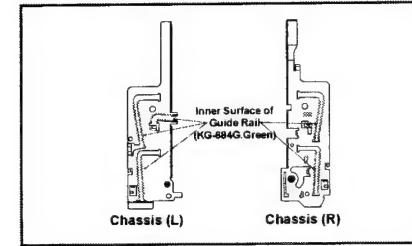
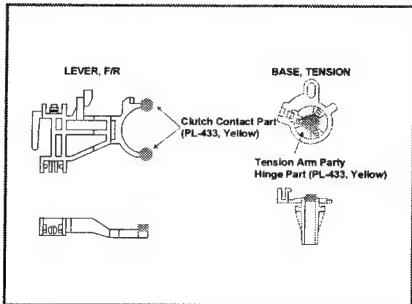


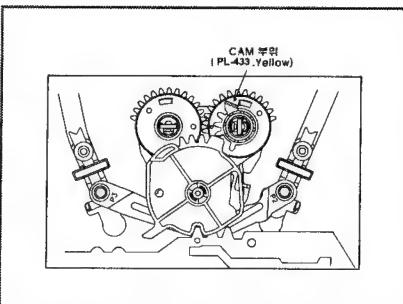
Plate Slider

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

Lever, F/R, Base, Tension



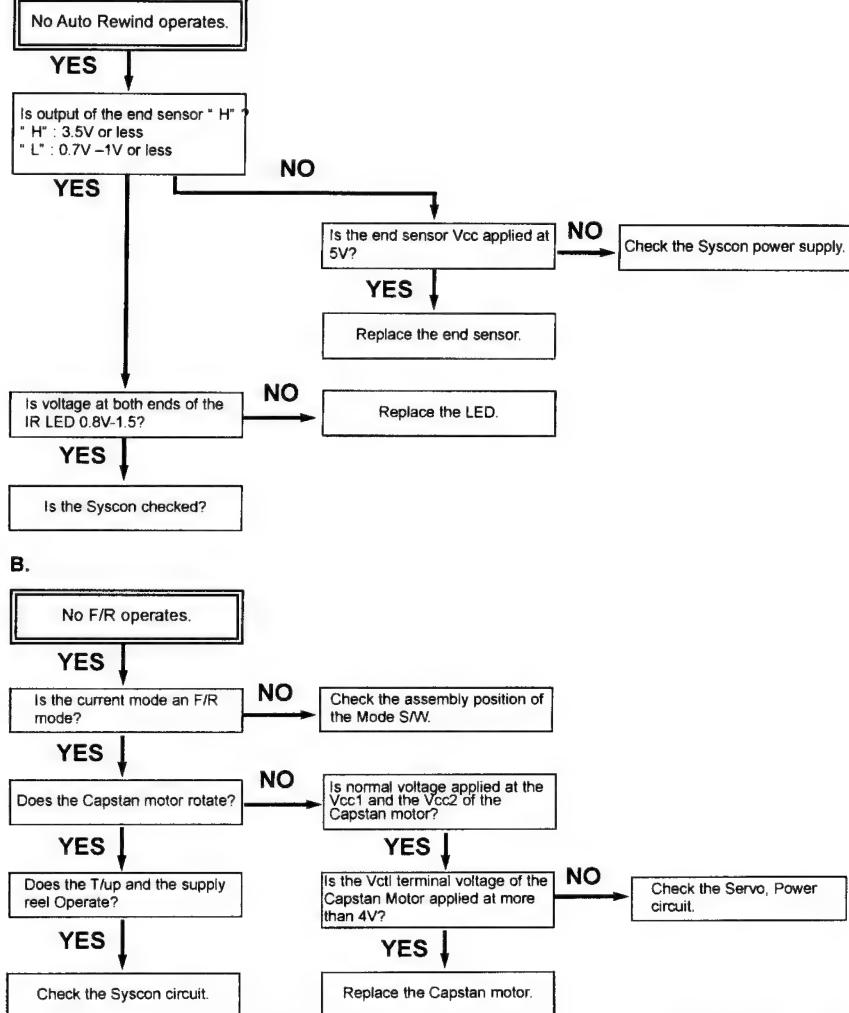
GEAR AY, P2 & P3



MECHANISM TROUBLESHOOTING GUIDE

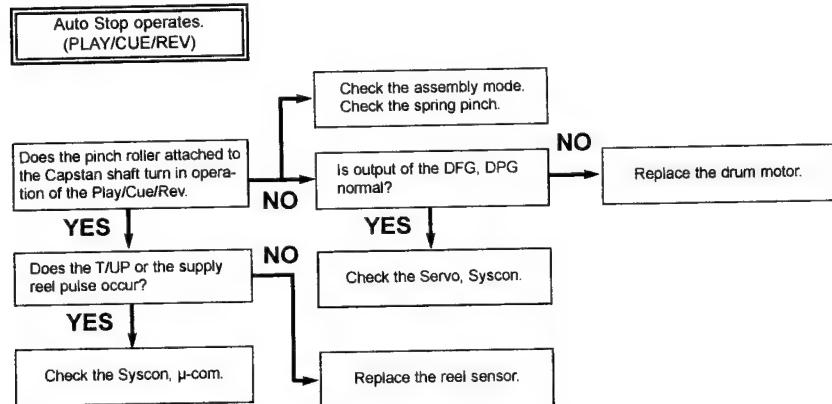
1. Deck Mechanism

A.

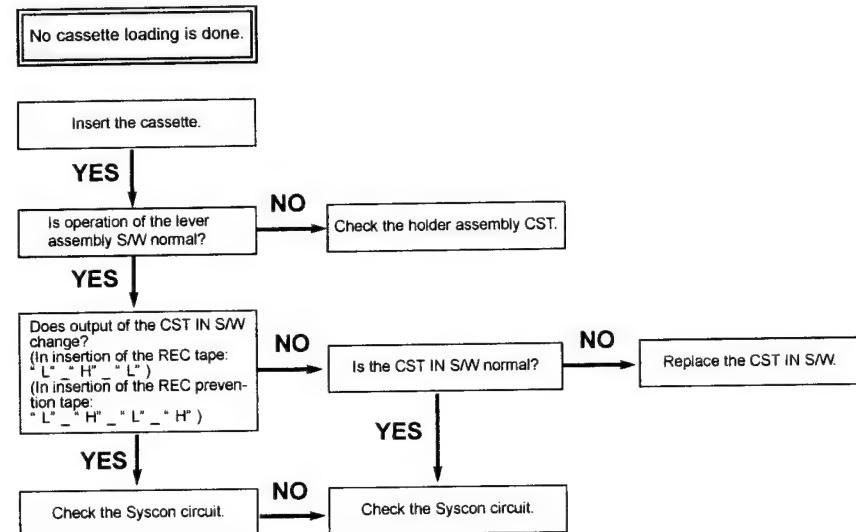


MECHANISM TROUBLESHOOTING GUIDE

C.

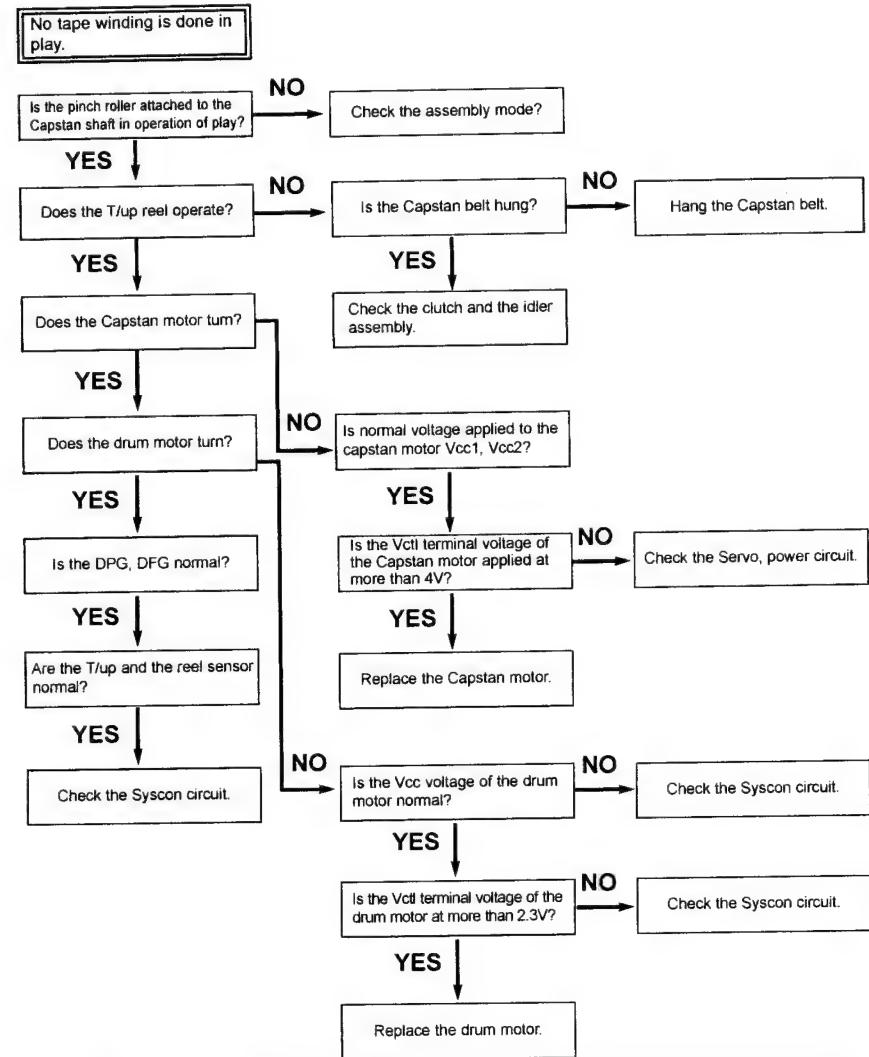


D.



MECHANISM TROUBLESHOOTING GUIDE

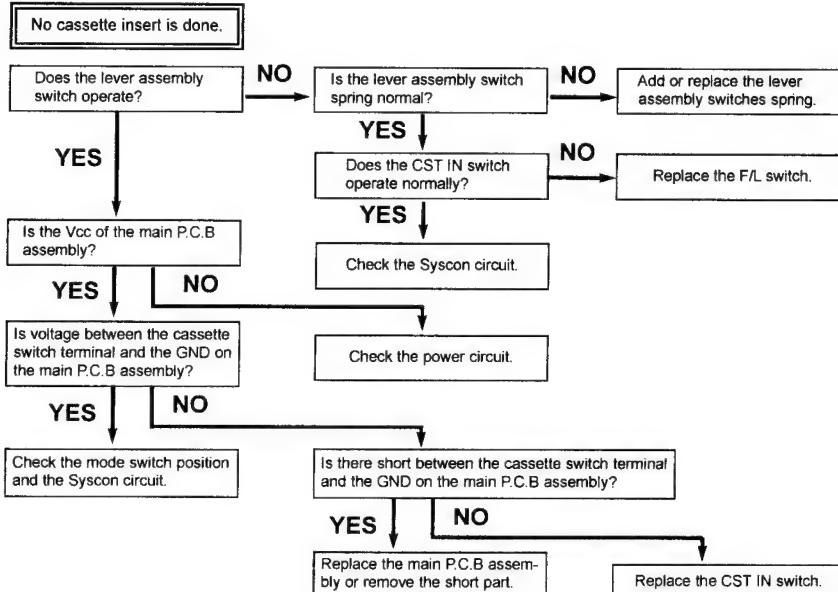
E.



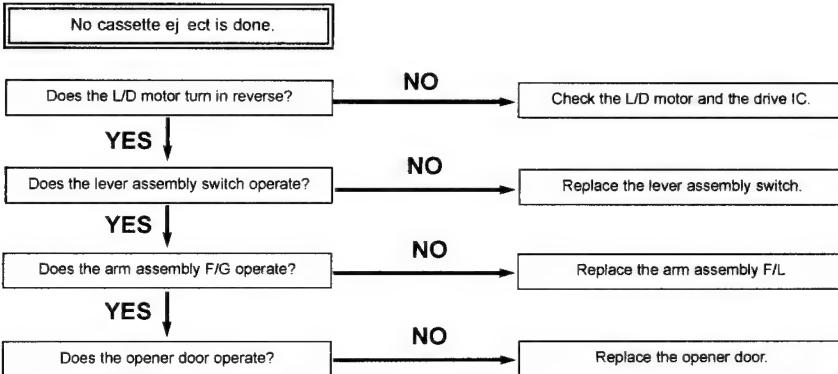
MECHANISM TROUBLESHOOTING GUIDE

2. Front Loading Mechanism

A.

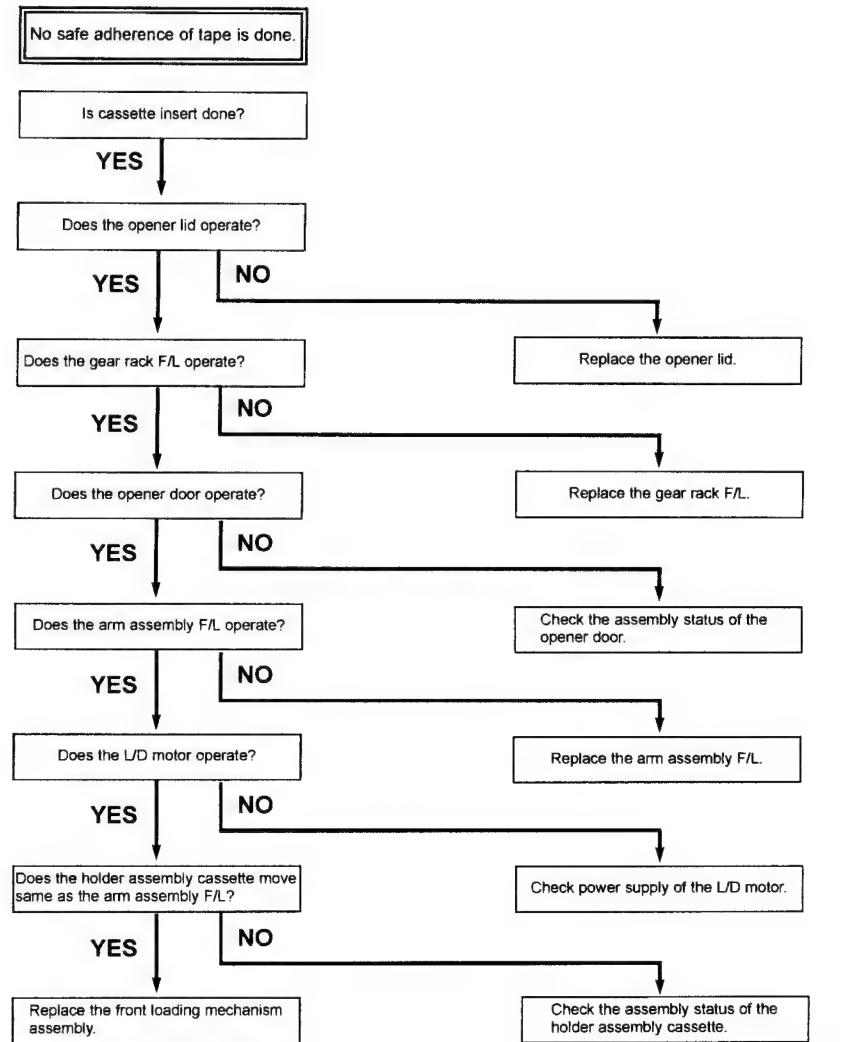


B.



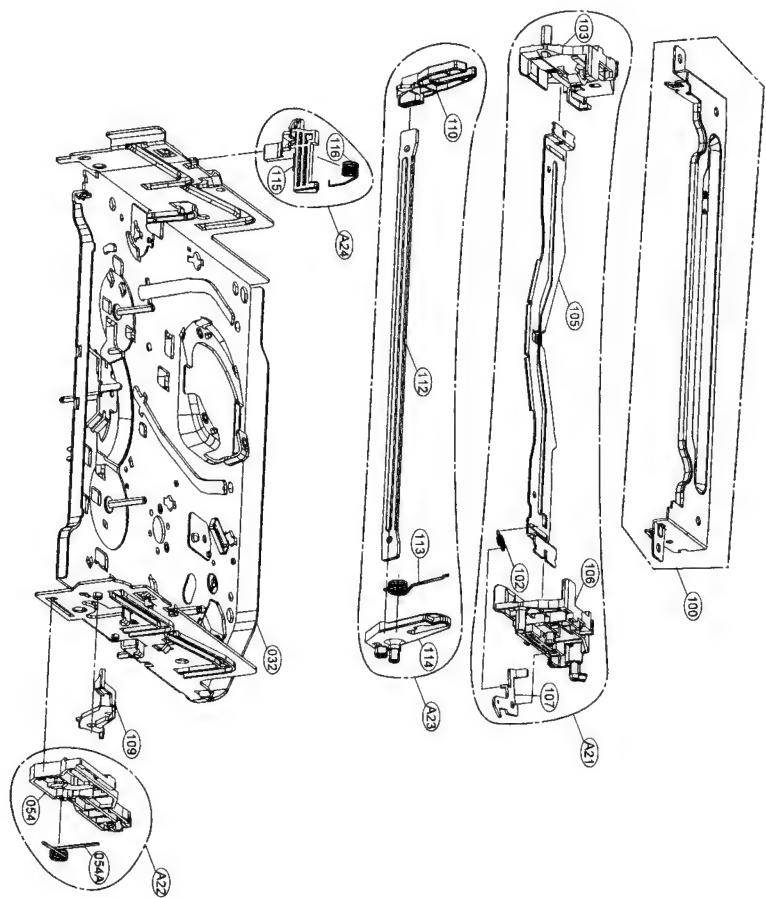
MECHANISM TROUBLESHOOTING GUIDE

C.



EXPLODED VIEWS

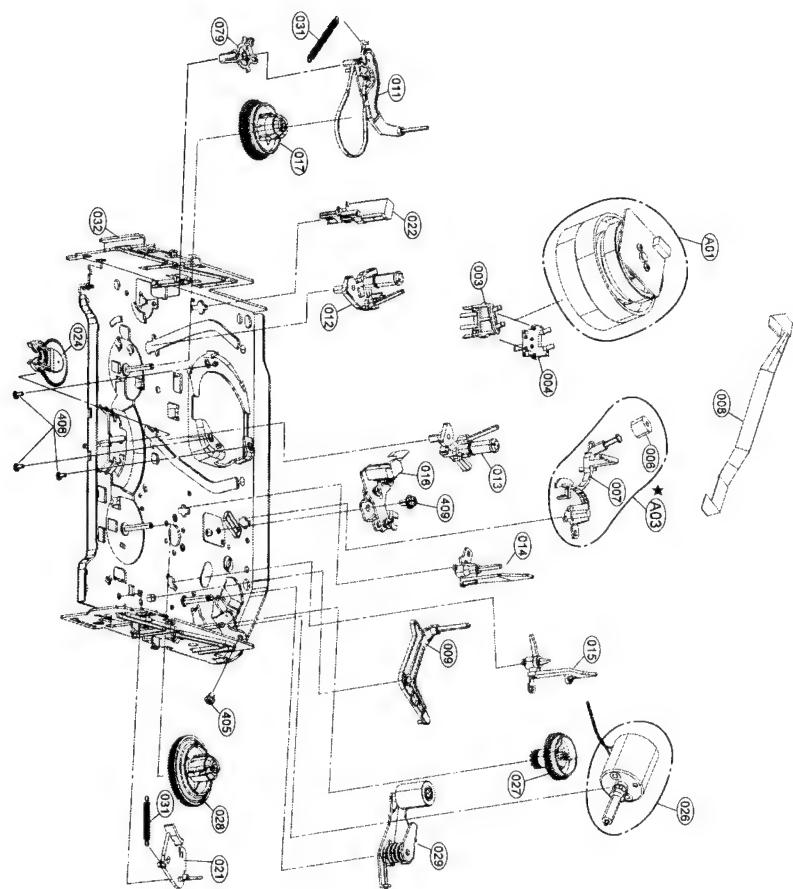
1. Front Loading Mechanism Section



EXPLODED VIEWS

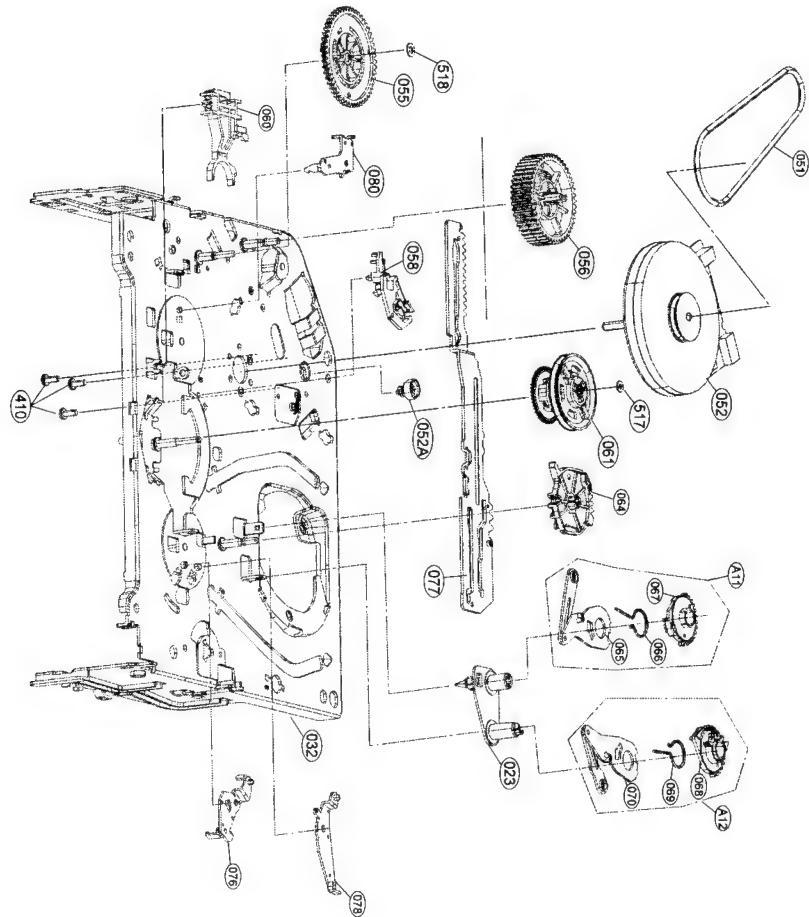
2. Moving Mechanism Section (1)

★ OPTIONAL PART



EXPLODED VIEWS

3. Moving Mechanism Section (2)



SECTION 5 MECHANISM OF DVD PART

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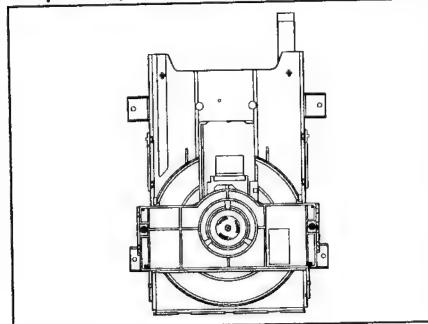
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EXPLODED VIEW

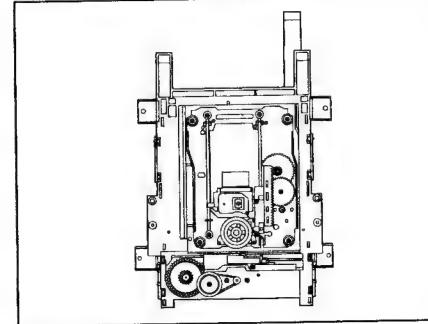
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DECK MECHANISM PARTS LOCATION

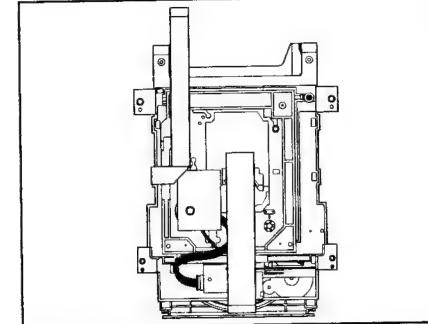
• Top View (With Tray)



• Top View (Without Tray)



• Bottom View



Procedure Starting No.	Parts	Fixing Type	Disass- embly	Figure
1	Holder Clamp	2 Screws, 2 Locking Tabs		5-1
1	2 Clamp Assembly Disc			5-1
1, 2	3 Plate Clamp			5-1
1, 2, 3	4 Magnet Clamp			5-1
1, 2, 3, 4	5 Clamp Upper			5-1
1	6 Tray Disc			5-2
1, 6	7 Base Assembly Sled	4 Screws,		5-3
1, 2, 6	8 Gear Assembly Feed			5-3
1, 2, 6, 8	9 Gear Middle			5-3
1, 2, 6, 8, 9	10 Gear Assembly Rack	1 Screw		5-3
1, 2, 7	11 Rubber Rear			5-3
1, 2, 7	12 Frame Assembly Up/Down	1 Screw	Bottom	5-4
1, 2	13 Belt Loading	1 Locking Tab		5-4
1, 2, 13	14 Gear Pulley			5-4
1, 2, 13, 14	15 Gear Loading	1 Locking Tab		5-4
1, 2, 12, 13, 14	16 Guide Up/Down			5-4
1, 2, 13	17 PWB Assembly Loading	1 Locking Tab 1 Hook 2Screw	Bottom	5-4
1, 2, 7, 12, 13, 14, 15, 16, 17	18 Base Main			5-4

Note

When reassembling, perform the procedure in reverse order.

The "Bottom" on Disassembly column of above Table indicates the part should be disassembled at the Bottom side.

DECK MECHANISM DISASSEMBLY

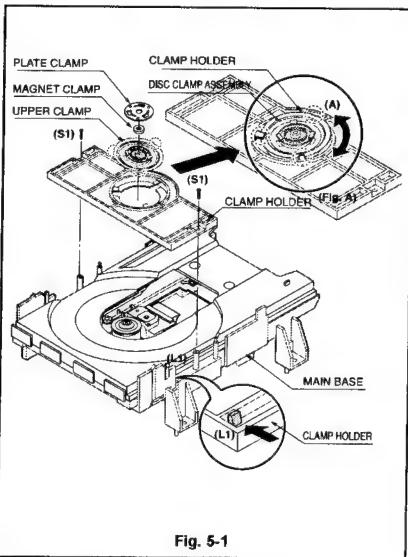


Fig. 5-1

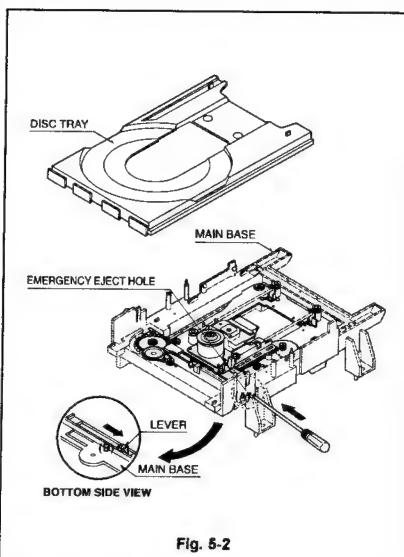


Fig. 5-2

1. Holder Clamp (Fig. 5-1)

- 1) Release 2 Screws(S1).
- 2) Unhook 2 Locking Tabs(L1).
- 3) Lift up the Holder Clamp and then separate it from the Base Main.

1-1. Clamp Assembly Disc

- 1) Place the Clamp Assembly Disc as Fig. (A)
- 2) Lift up the Clamp Assembly Disc in direction of arrow(A).
- 3) Separate the Clamp Assembly Disc from the Holder Clamp.

1-1-1. Plate Clamp

- 1) Turn the Plate Clamp to counterclockwise direction and then lift up the Plate Clamp.

1-1-2. Magnet Clamp

- 1-1-3. Clamp Upper

2. Tray Disc (Fig. 5-2)

- 1) Insert and push a Driver in the emergency ej ect hole(A) at the right side, or put the Driver on the Lever(B) of the Gear Emergency and pull the Lever(B) in direction of arrow so that the Tray Disc is ej ected about 15~20mm.
- 2) Pull the Tray Disc until it is separated from the Base Main completely.

DECK MECHANISM DISASSEMBLY

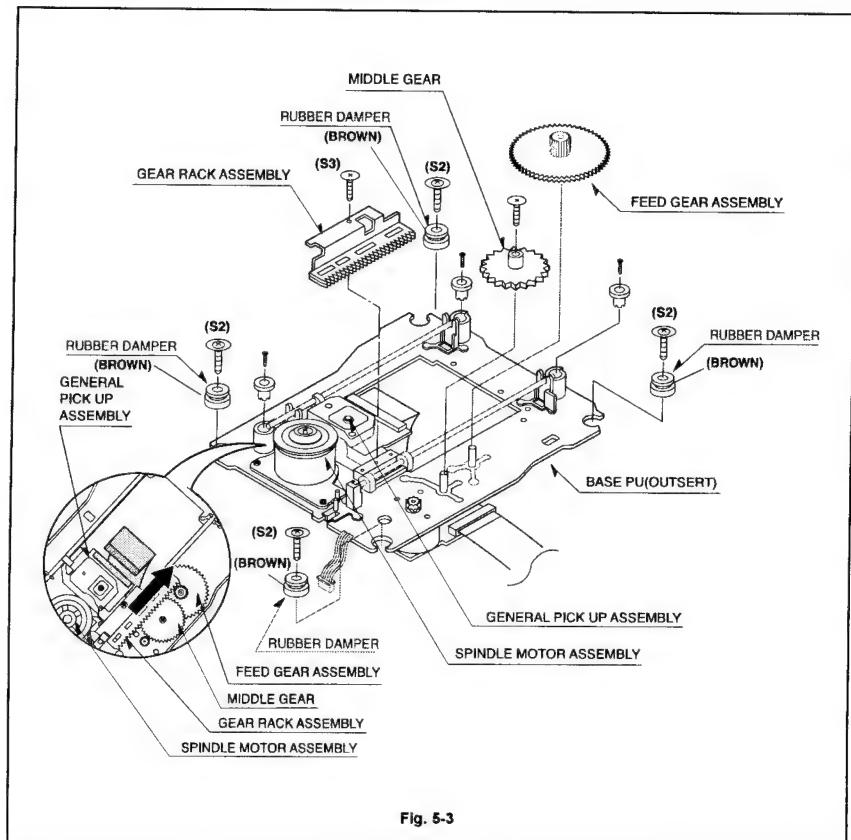


Fig. 5-3

3. Base Assembly Sled (Fig. 5-3)

- 1) Release 4 Screw(S2).
- 2) Disconnect the FFC Connector(C1)

3-1. Gear Assembly Feed

3-2. Gear Middle

3-3. Gear Assembly Rack

- 1) Release the Screw(S3)

4. Rubber Rear (Fig. 5-3)

DECK MECHANISM DISASSEMBLY

MEMO

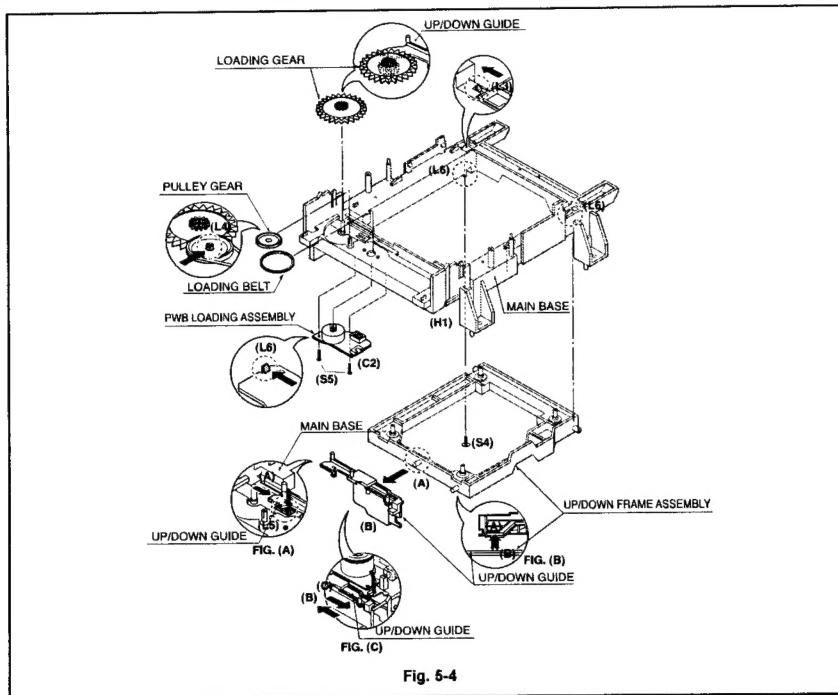


Fig. 5-4

5. Frame Assembly Up/Down (Fig. 5-4)

Note

Put the Base Main face down(Bottom Side)

- 1) Release the Screw(S4)
- 2) Unlock the Locking Tab(L3) in direction of arrow and then lift up the Frame Assembly Up/Down to separate it from the Base Main.

Note

- When reassembling move the Guide Up/Down in direction of arrow(C) until it is positioned as Fig.(C).
- When reassembling insert (A) portion of the Frame Assembly Up/Down in the (B) portion of the Guide Up/Down as Fig.(B).

6. Belt Loading(Fig. 5-4)

Note

Put the Base Main on original position(Top Side)

7. Gear pulley (Fig. 5-4)

- 1) Unlock the Locking Tab(L4) in direction of arrow(B) and then separate the Gear Pulley from the Base Main.

8. Gear Loading (Fig. 5-4)

9. Guide Up/Down (Fig. 5-4)

- 1) Move the Guide Up/Down in direction of arrow(A) as Fig.(A)
- 2) Push the Locking Tab(L5) down and then lift up the Guide Up/Down to separate it from the Base Main.

Note

When reassembling place the Guide Up/Down as Fig.(C) and move it in direction arrow(B) until it is locked by the Locking Tab(L5). And confirm the Guide Up/Down as Fig.(A)

10. PWB Assembly Loading (Fig. 5-4)

Note

Put the Base Main face down(Bottom Side)

- 1) Release 2 Screws(S5)
- 2) Unlock the Loading Motor (C2) from the Hook (H1) on the Base Main.
- 3) Unlock 2 Locking Tabs(L6) and separate the PWB Assembly Loading from the Base Main.

11. Base Main(Fig. 5-4)

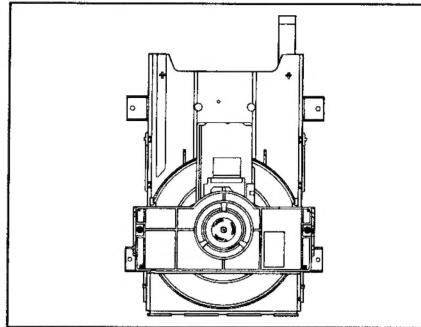
SECTION 5 MECHANISM OF DVD PART

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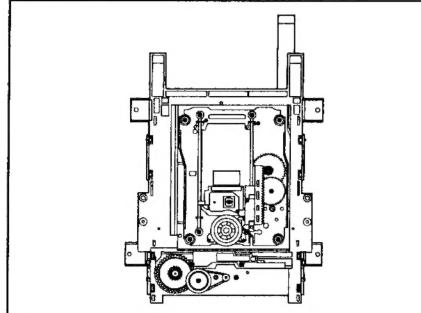
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DECK MECHANISM PARTS LOCATION

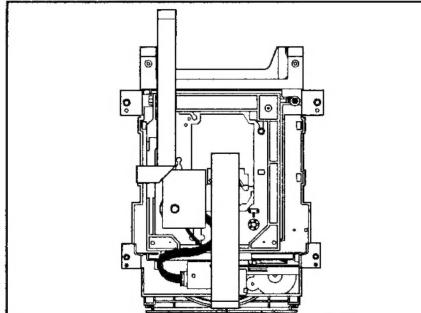
• Top View (With Tray)



• Top View (Without Tray)



• Bottom View



Procedure Starting No.	Parts	Fixing Type	Disassembly	Figure
1	Holder Clamp	2 Screws, 2 Locking Tabs		5-1
1, 2	Clamp Assembly Disc			5-1
1, 2, 3	Plate Clamp			5-1
1, 2, 3, 4	Magnet Clamp			5-1
1	Clamp Upper			5-1
1, 6	Tray Disc			5-2
1, 6	Base Assembly Sled	4 Screws,		5-3
1, 2, 6	Gear Assembly Feed			5-3
1, 2, 6, 8	Gear Middle			5-3
1, 2, 6, 8, 9	Gear Assembly Rack	1 Screw		5-3
1, 2, 7	Rubber Rear			5-3
1, 2, 7	Frame Assembly Up/Down	1 Screw	Bottom	5-4
1, 2	Belt Loading	1 Locking Tab		5-4
1, 2, 13	Gear Pulley			5-4
1, 2, 13, 14	Gear Loading	1 Locking Tab		5-4
1, 2, 13, 14, 15	Guide Up/Down			5-4
1, 2, 13	PWB Assembly Loading	1 Locking Tab 1 Hook 2Screw	Bottom	5-4
1, 2, 7, 12, 13, 14, 15, 16, 17	Base Main			5-4

Note

When reassembling, perform the procedure in reverse order.
The "Bottom" on Disassembly column of above Table indicates the part should be disassembled at the Bottom side.

DECK MECHANISM DISASSEMBLY

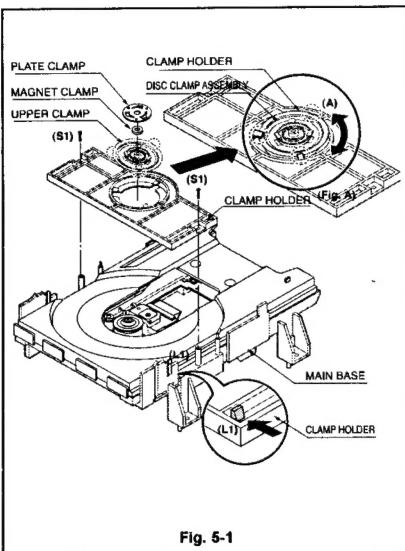


Fig. 5-1

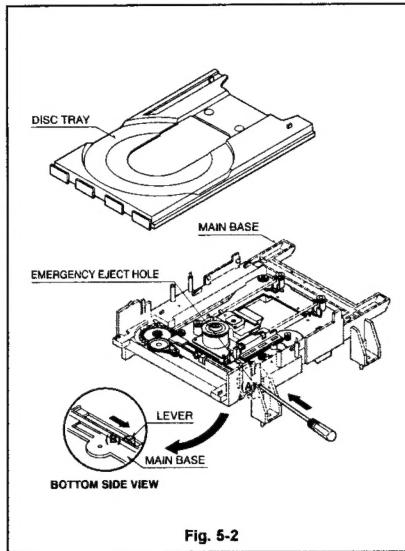


Fig. 5-2

1. Holder Clamp (Fig. 5-1)

- 1) Release 2 Screws(S1).
- 2) Unhook 2 Locking Tabs(L1).
- 3) Lift up the Holder Clamp and then separate it from the Base Main.

1-1. Clamp Assembly Disc

- 1) Place the Clamp Assembly Disc as Fig. (A)
- 2) Lift up the Clamp Assembly Disc in direction of arrow(A).
- 3) Separate the Clamp Assembly Disc from the Holder Clamp.

1-1-1. Plate Clamp

- 1) Turn the Plate Clamp to counterclockwise direction and then lift up the Plate Clamp.

1-1-2. Magnet Clamp

1-1-3. Clamp Upper

2. Tray Disc (Fig. 5-2)

- 1) Insert and push a Driver in the emergency ej ect hole(A) at the right side, or put the Driver on the Lever(B) of the Gear Emergency and pull the Lever(B) in direction of arrow so that the Tray Disc is ej ected about 15~20mm.
- 2) Pull the Tray Disc until it is separated from the Base Main completely.

DECK MECHANISM DISASSEMBLY

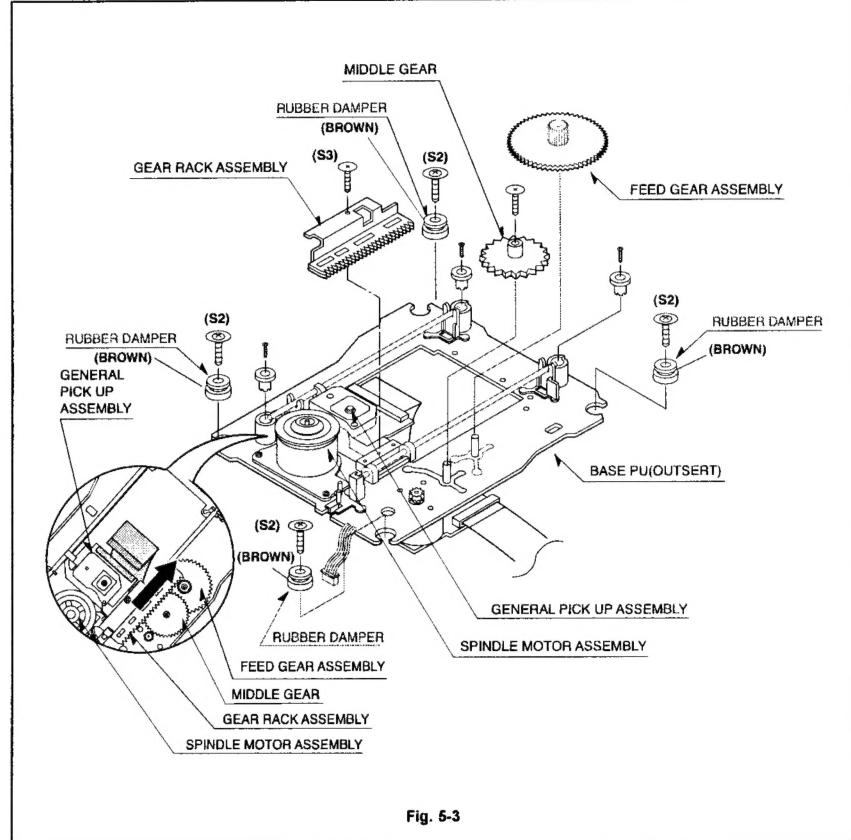


Fig. 5-3

3. Base Assembly Sled (Fig. 5-3)

- 1) Release 4 Screw(S2).
 - 2) Disconnect the FFC Connector(C1)
- 3-1. Gear Assembly Feed
3-2. Gear Middle

- 3-3. Gear Assembly Rack
1) Release the Scerw(S3)

4. Rubber Rear (Fig. 5-3)

DECK MECHANISM DISASSEMBLY

MEMO

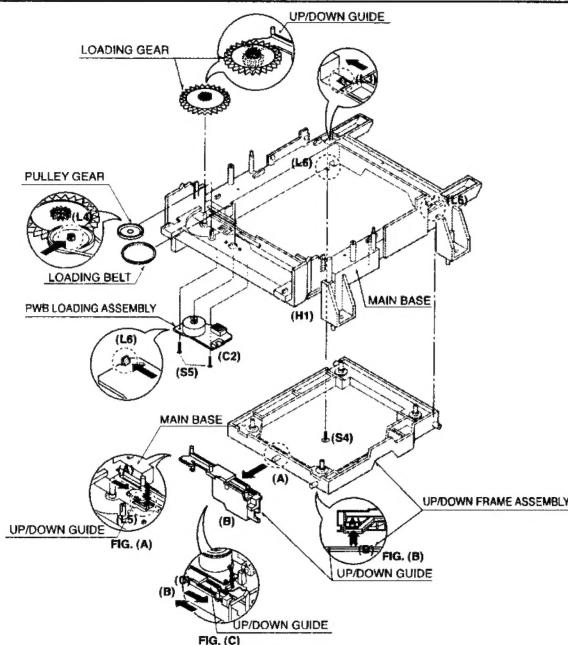


Fig. 5-4

5. Frame Assembly Up/Down (Fig. 5-4)

Note

Put the Base Main face down(Bottom Side)

1) Release the Screw(S4)

2) Unlock the Locking Tab(L3) in direction of arrow and then lift up the Frame Assembly Up/Down to separate it from the Base Main.

Note

• When reassembling move the Guide Up/Down in direction of arrow(C) until it is positioned as Fig.(C).

• When reassembling insert (A) portion of the Frame Assembly Up/Down in the (B) portion of the Guide Up/Down as Fig.(B)

6. Belt Loading(Fig. 5-4)

Note

Put the Base Main on original position(Top Side)

7. Gear pulley (Fig. 5-4)

1) Unlock the Locking Tab(L4) in direction of arrow(B) and then separate the Gear Pulley from the Base Main.

8. Gear Loading (Fig. 5-4)

9. Guide Up/Down (Fig. 5-4)

1) Move the Guide Up/Down in direction of arrow(A) as Fig.(A)

2) Push the Locking Tab(L5) down and then lift up the Guide Up/Down to separate it from the Base Main.

Note

When reassembling place the Guide Up/Down as Fig.(C) and move it in direction arrow(B) until it is locked by the Locking Tab(L5). And confirm the Guide Up/Down as Fig. (A)

10. PWB Assembly Loading (Fig. 5-4)

Note

Put the Base Main face down(Bottom Side)

1) Release 2 Screws(S5)

2) Unlock the Loading Motor (C2) from the Hook (H1) on the Base Main.

3) Unlock 2 Locking Tabs(L6) and separate the PWB Assembly Loading from the Base Main.

11. Base Main(Fig. 5-4)